# WILDLIFE SPECIALIST REPORT

# THOMAS CREEK RESTORATION PROJECT

# **ENVIRONMENTAL ASSESSMENT**

MARCH 25, 2016

UMATILLA NATIONAL FOREST
WALLA WALLA RANGER DISTRICT



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# REGULATORY FRAMEWORK

The following laws apply to the Thomas Creek project: Endangered Species Act, Migratory Bird Treaty Act, National Forest Management Act, and the Bald and Golden Eagle Protection Act. Additional policy direction relating to wildlife habitat and species is provided in the Umatilla National Forest Land and Resource Management Plan, the Forest Service Manual (FSM 2670), and Executive Order 13186. The Umatilla National Forest Land and Resource Management Plan (USFS 1990) contains Standards and Guidelines that must be met for specific Management Areas and wildlife habitats. The Regional Forester's Eastside Forest Plans Amendment #2 (USFS 1995) and other direction amends some of the standards contained in the LRMP and establishes standards for old growth habitat, snag and down wood densities, and habitat connectivity. The standards and guidelines in the LRMP, as amended, apply to the proposed activities contained in this analysis.

# **SCALE OF ANALYSIS**

The quantity and quality of wildlife habitat and the effects of proposed activities was assessed using: district records; field reviews; aerial imagery; data in Geographic Information System (GIS); DecAID, Current Vegetation Survey and Gradient Nearest Neighbor datasets; publications, reports, and scientific papers; and personal communications with state and other wildlife biologists.

The scale of analysis for direct, indirect, and cumulative effects to wildlife varies depending on the species. The scale of analysis for most species is the 15,773 acre project area with the following exceptions:

- Elk habitat is assessed by forest plan management area as described in the elk section, because forest plan standards for elk are specific to each area. A logical boundary was used to include Management Area C4 beyond the project area so that the area was large enough for meaningful analysis.
- Habitat for the primary cavity excavator group is assessed at the watershed scale.
- NFMA viability compliance for management indicator species is determined at the forest scale.

Time frames considered for direct, indirect, and cumulative effects to wildlife are short-term (within 5 years), mid-term (5-15 years) and long-term (more than 15 years). These spatial and temporal scales are appropriate given the parameters of the proposed activities and the duration of potential effects to all wildlife species addressed in this document.

Proposed harvest treatments would change forest stand structure and composition on a maximum of 3,080 acres, or 19 percent of the 15,773 acre project area. Some wildlife species will benefit from these changes while others may not, and there are short term versus long term trade-offs. Overall, effects to wildlife habitat are not expected to result in measureable effects to wildlife populations, and should provide increased wildlife habitat diversity in the project area.

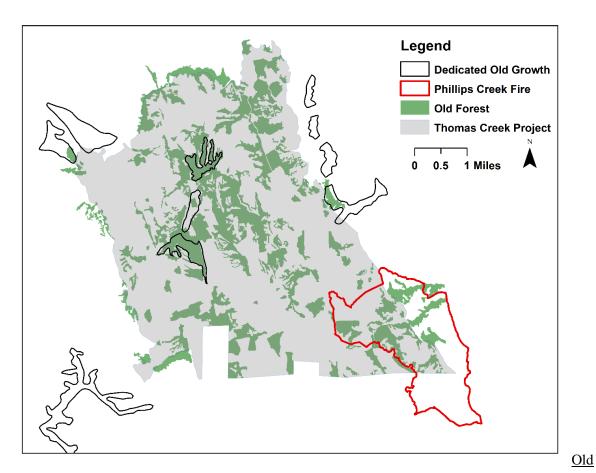
The following categories of wildlife or habitats are discussed: old forest habitat; management indicator species; threatened, endangered and sensitive wildlife and invertebrate species; northern goshawk; and priority bird habitats.

# AFFECTED ENVIRONMENT - OLD FOREST HABITAT

# **Dedicated Old Growth**

The Forest Plan allocated specific areas as Management Area C1-Dedicated Old Growth or C2- Managed Old Growth to provide old growth forest habitat across the Forest. Stand size and distribution are variable and depend on the vegetation type and target management indicator species (USFS 1990).

One Dedicated Old Growth area made up of three stands is located in the center of the project area along Dry Creek (No. 2552, 382 acres) (Figure W1). Old Growth condition was assessed in this area in 2001 and 2004. Dense canopy cover, 2-3 tree layers, numerous snags, down wood, and larger diameter trees were noted. Dominant trees species are grand fir and Douglas fir. There is no Management Area C2 in the project area.



**Figure W1.** Distribution of old forest in the Thomas Creek project area.

# Forest Structure

The Regional Forester's Forest Plan Amendment #2 (USFS 1995), commonly referred to as Eastside Screens, requires that large scale vegetation projects (timber sales) be screened to evaluate their potential impact on: riparian habitat; forest composition, structure and density; and old forest amounts, distribution and connectivity. It also established standards for goshawk and dead wood habitat.

The amount of old forest structure is evaluated to determine if it is within, above, or below the historical range of variability. The Umatilla Forest uses the silvicultural terms Old Forest Multi Strata (OFMS), and

Old Forest Single Stratum (OFSS) structural stages to assess the amount and distribution of old forest and large tree habitat. Old forest structure classes contain 10 or more live conifer trees per acre greater than or equal to 21 inches diameter at breast height (DBH). The project silviculturist and wildlife biologist worked together to insure that old forest was accurately reflected in the vegetation data for this project.

While only structure is considered here for the purposes of identifying old forest habitat, a number of other factors actually affect the quality and effectiveness of these stands for providing habitat to mature and old forest associated wildlife species. The intent of the Eastside Screens is to focus on keeping large trees in the landscape where they are scarce, as an interim measure.

A comparison of existing old forest amount to the range of variability (RV) indicates that in both moist and dry upland forest, OFMS is within or above RV (Silviculture Report). This indicates that there are adequate amounts of multi strata old forest structure in the HRV analysis area. However, OFSS is below reference conditions (Table W-1). There are slightly less than 300 acres of OFSS in the HRV analysis area. In general this is reflective of the relative productivity of the analysis area and the lack of disturbances that lead to single layered forest stands (Silviculture Report). The Eastside Screens state that for areas below HRV (gray shading), there should be no net loss of old forest structure.

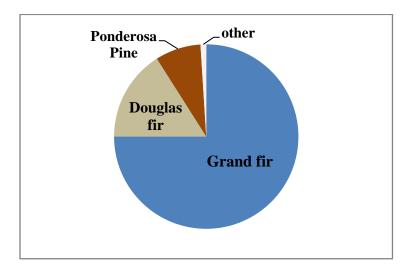
The Phillips Creek Fire of 2015 affected a small amount of old forest. There were 217 acres of dry old forest within the burn perimeter, but only 63 acres burned with moderate to high severity. In moist old forest, 159 acres of OFMS were within the fire perimeter, of which 37 acres burned at moderate to high severity.

**Table W1.** Comparison of existing amount of old forest to Historic Range of Variability (HRV) in the Thomas Creek HRV analysis area.

Potential Vegetation	Moist Upland Forest 20,130 ac			<b>Dry Upland Forest</b> 1,425 ac		
Group	Historic	Current	Acres	Historic	Current	Acres
OFMS	15-20 %	29 %	5903	5-15 %	43 %	616
OFSS	10-20 %	1 %	154	40-60 %	10 %	142
Total old forest	25-40 %	30 %	6057	45-75 %	53 %	758

Within the project area boundary, 89 percent of the forested area is moist forest (11,200 acres), and the majority of the old forest in the project area is a grand fir cover type (3,540 acres) (Figure W2). The small amount of dry old forest (1,370 acres) consists of Douglas fir, grand fir, and ponderosa pine in descending order of abundance.

Old forest stands occur on nearly one third of the area. It is relatively well distributed and connected considering the natural openings throughout the area. The Thomas Creek analysis included about 580 acres of old forest that is now within the 2015 Phillips Creek fire boundary. These areas are primarily moist multi-story old forest, and the majority was unburned or lightly burned (Figure W1).



**Figure W2.** Old forest structure by cover types in the Thomas Creek project area.

# ANALYSIS OF EFFECTS - OLD FOREST

#### ALTERNATIVE A - NO ACTION

#### Direct/Indirect Effects

Without treatments the Dedicated Old Growth and other old forest structure would likely remain in its current state in the short term. In the long term these stands will begin to deteriorate but would likely continue to provide rich snag and down wood habitat. As long as fires do not occur in the planning area, there would be increasing amounts of old forest, stands with higher tree densities, mid and late seral species, and susceptibility to natural disturbances (Silviculture Specialist Report). Wildland fire under these conditions would exhibit extreme fire behavior and potentially remove large amounts of old forest. Species that depend upon unburned old forest structure would be displaced if a large stand-replacing fire occurred.

#### EFFECTS COMMON TO ALL ACTION ALTERNATIVES

# **Direct/Indirect Effects**

#### Dedicated Old Growth

No actions are proposed within Dedicated Old Growth (MA C1) areas. The current composition, structure, and function of these areas would be maintained under all of the proposed alternatives in the short -term. In the mid and long -term, these dedicated areas may deteriorate to the point they no longer provide old growth habitat, or a wildland fire could alter these stands. These areas would likely become a rich source of large diameter snag and down wood habitat.

# Old Forest Structure and Connectivity

Proposed harvest is designed to restore appropriate native trees and other vegetation in old plantations. Plantations generally have dense mixed conifer trees ranging from 7 to 21 inches diameter breast height (dbh). Many of these old clearcuts were planted with ponderosa pine that is not well suited for the project

area. In some areas an even-aged prescription is proposed if the stand is dominated by off-site ponderosa pine that needs to be removed. Some stands are appropriate for ponderosa pine retention but most are not (Silviculture Report).

Harvest activity would result in healthier stands with appropriate tree species for the area. Stands that are thinned would be immediately improved, and stands that are regenerated would grow into forest habitat over a longer term. At least 16 trees per acre would be retained in all units, as well as any live trees greater than or equal to 21 inches DBH. The healthiest large trees and all large snags would remain as the building blocks for present and future stand and wildlife habitat development.

Some treatment units show small areas of old forest within them because the unit shapes are based on prior cutting unit boundaries. For various reasons a portion of the area was not harvested. For example, some of the non-commercial thinning units have small areas (1 to 5 acres) classified as old forest. During layout these areas will not be marked for treatment.

No trees greater than or equal to 21 inches DBH would be removed under any alternative, and there would be little to no effect to old forest. All dead trees and snags greater than or equal to 12 inches dbh would be left to provide dead wood habitat unless excess fuels exist in the stand. Hazard trees that are cut would be left to provide down wood habitat. In some areas, live off-site ponderosa pine would be topped or girdled to create snags.

Treatment units that encroach on old forest connectivity corridors have design criteria to maintain cover in these areas. Eight units that affected connectivity have specific instructions for leave areas (Ch. 2, PDF 120). In addition, some commercial harvest in riparian areas were reduced or eliminated in order to maintain current connectivity. Old forest structure would continue to be well distributed and connected within the entire project area.

Alternative C adds 'buffers' around some units, allowing additional thinning adjacent to plantations, but old forest would be excluded from these treatments. Some trees less than 21 inches DBH but still considered old (>150 years) may be removed.

Prescribed fire includes landscape fire as well as burning in harvest units to reduce slash and prepare units for planting. Since no harvest is proposed in old forest, unit burning would not affect old forest.

The landscape burning areas includes 110 acres of moist old forest. Low to moderate intensity fire would favor seral, fire resistant species while reducing surface and ladder fuels. The desired surface fuel reduction and mortality of understory and overstory components would be commensurate with effects that could be expected to occur historically (Fuels Specialist Report). Low intensity fire generally does not change stand structure (Harrod et al. 2009). While there is a potential for mortality of individual green overstory trees, and for large-diameter snags and downed wood to be consumed during burning (especially those in later stages of decay), these potential impacts are not quantifiable due to the many variables involved. New snags created by burning would partially compensate for those lost. Burning conditions (weather, fuel conditions, general oversight of burning operations) would minimize the risk of losing larger-diameter green trees, logs, and snags. Design criteria would also be implemented to minimize the loss of large, old trees, snags, and down wood.

Proposed construction of temporary spur roads would not impact old forest or connective stands. All closed roads that are temporarily opened would remain closed to the public, and therefore access to old forest stands for activities such as firewood cutting would not increase. Haul routes pass through about three miles of old forest stands. Removal of danger trees along these roads is expected to be minimal.

Snag creation and tree planting would not occur in old forest.

# EFFECTS UNIQUE TO ALTERNATIVE E

Alternative E proposes some commercial thinning in OFMS (170 acres) and may also remove some trees more than 150 years old. Additional hand thinning may be implemented in old forest inclusions within the boundaries of old clear cuts. OFMS would convert to OFSS in these stands, and no large diameter trees ( $\geq$ 21 inches dbh) would be removed. Other additional treatments in Alternative E are proposed in Understory Reinitiation or Stem Exclusion stand structure. These treatments would move the area closer to the natural range of conditions than the other alternatives, but would disturb some existing old forest in the project area. The small amount (170 acres) would very slightly reduce the percentage on the landscape, and multi strata old forest would remain well above historic ranges.

Old forest structure would continue to be well distributed and connected within the entire project area because the thinned old forest would remain old forest single story, and connectivity would be maintained by design criteria.

#### CUMULATIVE EFFECTS – ALL ACTION ALTERNATIVES

Cumulative effects are evaluated at the project area scale. Past timber harvest and roading is reflected in the existing condition. The recent Phillips Creek fire has also been incorporated into the existing condition. Personal use firewood cutting may occasionally remove large snags (up to 24 inch stump diameter) within 300 feet of open roads. Since open road density is low in this area, and cutting is restricted to 300 feet off of open roads, the effects to snag availability in old forest would be minor. Ongoing recreational activities, sheep grazing, and weed treatment would not have cumulative effects to the old forest habitat in this project area.

# AFFECTED ENVIRONMENT – MANAGEMENT INDICATOR SPECIES (MIS)

The National Forest Management Act (NFMA) directs the Forest Service to provide habitat to maintain viable populations of existing native and desired non-native vertebrate species. Management Indicator Species (MIS) were selected for emphasis in planning, and are assessed during forest plan implementation in order to determine the effects of management activities on their populations and the populations of other species with similar habitat needs. The amount and quality of habitat is used as a proxy for determining the effects of projects on MIS. All of these Management Indicator Species could be present in the Thomas Creek project area (Table W2).

**Table W2.** Wildlife Management Indicator Species for the Umatilla National Forest.

Species	Habitat Types	
Rocky Mountain elk	general forest habitat and winter ranges	
pine marten	mature and old growth stands at high elevations	
primary cavity excavators	dead/down tree (snag) habitat	
pileated woodpecker	dead/down tree habitat (mixed conifer) in mature and old growth stands	
northern three-toed	dead/down tree habitat (lodgepole pine) in mature and old	
woodpecker	growth stands	

- Vegetation data used to assess current habitat conditions were determined for American marten
  and pileated woodpecker by utilizing data from the Blue Mountains forest plan revision analysis
  (LRMP DEIS) (Wales et al. 2011) in conjunction with local vegetation data based on stand exams
  and photo interpretation. The LRMP DEIS analysis used Gradient Nearest Neighbor (GNN) data
  (LEMMA) for broad scale information.
- HRV for dead wood is from distribution histograms in DecAID (Mellen-McLean et al. 2012).
   The most recent (2012) GNN data for our area was used to estimate current snag densities and compare to reference data found in DecAID.
- For Rocky Mountain elk and Northern three-toed woodpecker local vegetation data was utilized from modeling based on stand exam data.

# AFFECTED ENVIRONMENT -

# DEAD AND DEFECTIVE WOOD FOR PRIMARY CAVITY EXCAVATORS (PCE)

Primary cavity excavators as a group were selected to represent dead/down tree (snag) habitat that a wide array of species depend on for reproduction and/or foraging (Table W2). Primary cavity excavators create holes for nesting or roosting in live, dead or decaying trees. Secondary cavity users such as owls, bluebirds, and flying squirrels may use these cavities later for denning, roosting, and nesting.

Populations of cavity nesting birds may have declined across the Blue Mountains compared to historical conditions, primarily due to reductions in the numbers of large snags (Wisdom et al. 2000). However, breeding bird surveys since 1966 indicate a stable, increase, or positive population trend for most of the PCE species in Oregon (Sauer et al. 2014). Partners in Flight (PIF) data indicate that some species may be 'of concern.' Lewis woodpecker and white-headed woodpecker have the highest concern PIF scores of all PCEs, and both are listed on our Regional Forester's Sensitive species list. They are addressed specifically later in this document (see TES wildlife section).

Additional information on cavity-excavating birds' habitat associations, distribution and life history requirements is summarized in Mellen-McLean (2012a). Habitat for primary cavity excavators includes coniferous and hardwood stands in a variety of structural stages and the availability of dead trees in various size and decay classes (Thomas et al. 1979). Primary habitat generally contains snags greater than 15 inches DBH, while smaller sizes provide secondary habitat.

Because this MIS group was selected to represent dead and defective wood habitat, this analysis and discussion focuses primarily on that habitat component. While maintaining snags and down wood in managed areas contributes to providing habitat for cavity excavators, habitat for each woodpecker species is more than just dead wood, and different for each species. Snag availability is the most limiting factor because that is where reproduction occurs.

# Treatment unit standard:

The Forest Plan established minimum standards for snag retention in harvest units based on a 1970's publication that synthesized the habitat requirements of snag-associated species (Thomas et al. 1979) (Table W3). Snag retention in harvest units, plus acre amounts of habitat in the area, presumed a level of PCE viability. The forest plan also determined that in addition to snag retention in harvest units, Dedicated Old Growth areas, the amount of other old forest, and the amount of forest that would not be managed (e.g. wilderness, etc.) would provide for viable populations.

The biological potential model used in the forest plan is an outdated technique for determining both snag retention needs at the unit level and for determining viability of woodpecker populations at the forest level (Rose et al. 2001). New information about the ecology, dynamics, and management of decayed wood has been published since then, and the state of the knowledge continues to change. However, until the forest plan is amended to reflect the new science, 100% biological potential is the *minimum* number of snags that need to be maintained through the life of the stand rotation. The Thomas Creek project snag recommendation is to leave all snags  $\geq$  12 inches dbh (Table W3).

Snag and down wood habitat is limited within the Thomas Creek plantation units. These are young stands growing up in former clear cuts, so the dead trees that are present are mainly less than 20 inches in diameter. While these areas provide foraging habitat for woodpeckers, there is limited opportunity for excavating cavities for nesting. Because of this condition, dead trees and snags 12 inches dbh and larger will not be cut in harvest units, unless a safety hazard exists. If larger snags must be cut for safety, they will be left to provide down wood.

The intent of the Thomas Creek project is to improve stand conditions and promote long term development of large trees, snags, and down wood for the future. Snags would also be created in some areas from larger undesirable trees by girdling, topping, or other means.

Most of the live trees are also in smaller size classes than needed for woodpecker nesting, so this resource will be limited in the short term within harvest units. Snags and down wood outside of the old plantations are currently the best source of habitat for cavity excavators.

In addition to snag retention in harvest units, design criteria for snag replacement trees and down wood is in provided (see Ch. 2 Design Criteria).

**Table W3.** Umatilla Forest Plan standards for harvest units, and Thomas Creek recommendation.

	Umatilla Forest Plan Standard (minimum)	Thomas Creek project recommendation
Diameter class (inches DBH)	Average snag density (#/acre)	Snag Density
>10	2.25	Leave all snags ≥ 12 inches
>20	0.14	Leave all
Total	2.25	Leave all snags ≥ 12 inches

#### **Snag Analysis**

# Historic Range of Variability

Integration of the latest science is incorporated into this analysis using DecAID Advisor (version 2.2) (Mellen-McLean et al. 2012) which is an internet-based summary, synthesis, and integration (a "meta-analysis") of the best available science: published scientific literature, research data, wildlife databases, forest inventory databases, and expert judgment and experience. In addition to data showing wildlife use of dead wood, DecAID also contains data showing amounts and sizes of dead wood across the landscape based on vegetation inventory data.

Project area contribution to the viability of primary cavity excavator MIS is assessed using the historical range of variability (HRV) concept; comparing current amounts and distribution of habitat to historical conditions (Wisdom et al. 2000, Suring et al. 2011). Scientists assume that species are more likely to persist into the future under the conditions that remain most similar to the conditions that they persisted in during the past (Landres et al. 1999, Samson et al. 2003). By managing habitat within HRV it is assumed that adequate habitat will be provided because species survived those levels of habitat in the past to be present today. Thus, if we manage current habitats within the range of historic variability, we are likely to do an adequate job of maintaining population viability for those species that remain. The further current habitat conditions are from HRV, the more likely it is that population viability will be compromised.

# Reference conditions

USFS Region 6 Continuous Vegetation Surveys (CVS) are permanent plots on a 1.7-mile grid that sample the vegetative condition on Forest Service land (Brown 2003). DecAID contains snag information from this data source by watershed and by habitat types. CVS data collected from plots that fell within unharvested areas of the Blue Mountains is used as a reference condition. Data for the small/medium, large, and open structure classes was weighted to best reflect HRV conditions on the Umatilla Forest as determined by the Forest Silviculturist (Powell 2014). Although the data from unharvested areas may not accurately reflect "pre-settlement" or "natural" conditions in eastside forests due to years of fire exclusion (Mellen-McLean et al. 2012), it is comparable to other estimates of historical dead wood densities (Harrod et al. 1998, Agee 2002, Ohmann and Waddell 2002).

Current levels of dead wood may be elevated above historical conditions in some areas due to fire suppression and increased mortality, and may be depleted below historical levels in local areas burned by intense fire or subjected to repeated salvage and firewood cutting (Mellen-McLean et al. 2012). Even with this caveat, the data are used in this analysis because: they are still some of the best data available to assess HRV of dead wood, even in eastside dry forests; they are the only available data showing distribution and variation in snag and down wood amounts across the landscape; the data from unharvested stands are in the range of other published data on HRV of dead wood even in the drier vegetation types (Mellen-McLean 2011).

#### Existing conditions

Current snag habitat was evaluated using the 2012 Gradient Nearest Neighbor (GNN) vegetation data (Ohmann and Gregory 2002). GNN produces pixel-based maps with associated snag and down wood data. For more information go to <a href="http://www.fsl.orst.edu/lemma/main.php?project=imap&id=home">http://www.fsl.orst.edu/lemma/main.php?project=imap&id=home</a>.

GNN snag data is organized by watershed and habitat type. The Thomas Creek project area falls within three watersheds and these three data sets were combined into the 109,000 acre Thomas Creek snag analysis area (Figure W3).

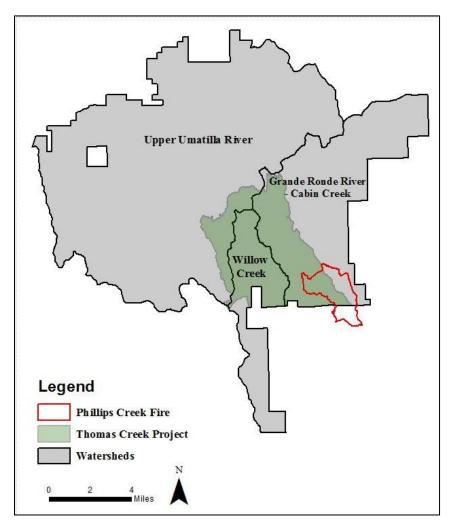
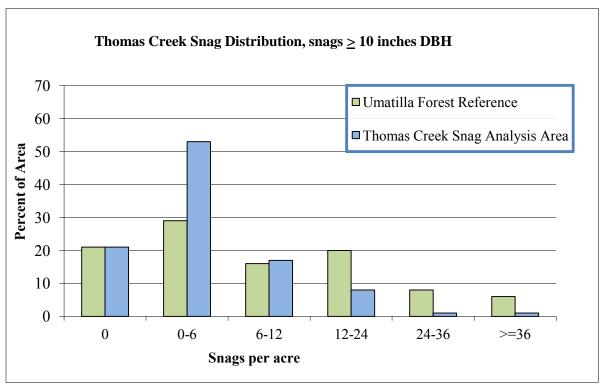


Figure W3. Thomas Creek Project Dead Wood Analysis Area

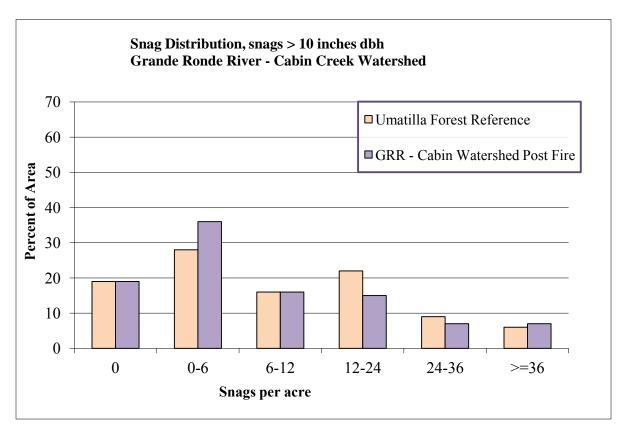
The Thomas Creek snag analysis area is representative of the Eastside Mixed Conifer E Cascades/Blue Mountains habitat type (EMC/ECB) (Mellen-McLean et al. 2012). Snag data was weighted by structure type to result in one number that reflects the proportion of data within each type (large, open, and small/medium) for the entire snag analysis area. A distribution analysis was used to determine how close current conditions for snags on the landscape match reference conditions. Figure W4 is a comparison of approximated existing snag distributions in the Thomas Creek snag analysis area to reference conditions.



**Figure W4.** Distribution of snags  $\geq$  10 Inches DBH in moist upland forest in the snag analysis area (109,000 acres) prior to the Phillips Creek Fire.

The Phillips Creek fire affected the Grande Ronde – Cabin CreekWatershed in 2015. To determine the effects of this fire, the acres of forest that burned and created high density snags was adjusted for that watershed (Figure W5). The Phillips Creek fire did not make a large difference in the amount of area with higher snag densities in the context of the Grande Ronde River - Cabin Creek watershed. About 500 acres of dense snags were created by the fire, or two percent of that watershed. The effect on the entire snag analysis area (three watersheds) would be only 0.5 percent.

Snag densities greater than 36 trees per acre increased on about 500 acres in the Grande Ronde River – Cabin Creek Watershed (Figure W5). The amount of area with high density snag conditions (> 12 snags per acre) now more closely approximates reference conditions in the GRR – Cabin Creek Watershed (Figure W5).



**Figure W5.** Distribution of snags  $\geq 10$  inches DBH in moist upland forest in the Grande Ronde River – Cabin Creek Watershed (26,700 acres) after the Phillips Creek fire.

Generally, despite past harvest there is a relatively good distribution of snag densities in the Thomas Creek snag analysis area. For both > 10 and > 20 inch dbh snags, the amount of area with zero snags per acre is similar to reference conditions (Figures W4, W5, W6).

The amount of area with up to 6 snags per acre > 10 inches DBH is about 24 percent more than reference conditions, which indicates there is an abundance of area with more than zero but fewer than six snags per acre (Figure W4, W5). Densities of 6-12 snags/acre are similar to reference conditions (Figure W4, W5).

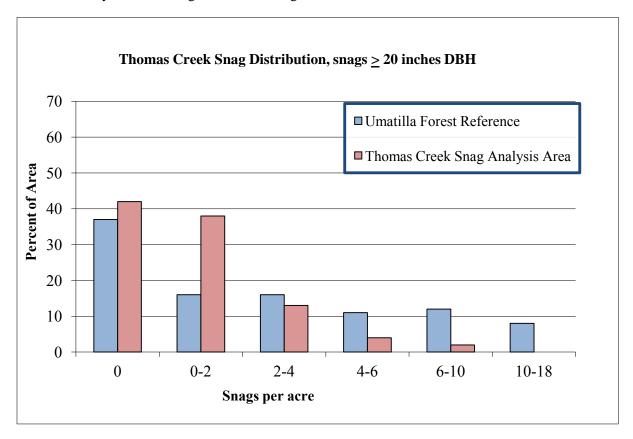
Figure W6 is a subset of the data in Figure W4 to highlight larger diameter snags. For larger snags > 20 inches DBH, the amount of area with up to two snags per acre is about 22 percent more than reference conditions, which indicates there is an over-abundance of area with more than zero but fewer than two snags/acre (Figure W6). Densities four per acre or more is lower than reference conditions. The amount of area with higher densities of large snags (>4 large snags per acre) is less than expected under reference conditions, but does occur on six percent of the snag analysis area or 6,540 acres.

Snag densities are at or above the 30%, 50%, and 80% tolerance levels for several PCE species (gray area in Table W4). Although not meeting all tolerance levels (unshaded blocks), high snag density habitat

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A tolerance level is an estimate of percent of individuals in a population that use a particular range of values. 50% tolerance means that studies showed 50% of sites used by the species in studies were in areas with that snag density.

is available on 29 percent of the Grande Ronde River – Cabin Watershed, for example. In addition, not meeting each level does not indicate that the species would not be present. A 50% tolerance level means that 50% of the woodpecker observations were in those snag densities. Therefore 50 % were also observed in study areas with higher or lower snag densities.



**Figure W6.** Distribution of snags  $\geq$  20 inches DBH in moist upland forest in the snag analysis area (109,000 acres) prior to the Phillips Creek Fire.

Pileated woodpecker and Williamson's sapsucker generally require higher snag densities. While this condition may be more limited in this area than desired, areas of high snag density do exist on the landscape. Numerous observations of pileated woodpecker in the area indicate habitat suitability. For snags greater than 20 inches dbh, habitat for Williamsons sapsucker would easily meet the 30% tolerance level, and the 50% tolerance level would be provided in fewer areas (Table W4).

Some species such as black-backed woodpecker key in on recent fires with dense snags (Table W4). Black backed woodpeckers may increase in the Phillips Creek Fire area. In the Grande Ronde – Cabin Creek watershed, the area with greater than 12 snags per acre increased due to the fire (Figure W6). This watershed in particular provides snag densities closer to reference conditions and higher quality habitat for species that are associated with many snags per acre.

**Table W4.** Tolerance levels for woodpeckers occurring in Eastside Mixed Conifer/Blue Mountains habitat type (DecAID Table EMC\_S/L.sp-22) (Mellen et al. 2012). Gray shading indicates levels in the Thomas Creek snag analysis area are at or above Blue Mountains reference values.

Enorice	Snag density/acre for 30%, 50%, 80% tolerance levels						
Species	>10" dbh			>20" dbh			
Tolerance level	30%	50%	80%	30%	50%	80%	
White-headed woodpecker	0.3	1.9	4.3	0.0	1.5	3.8	
Pygmy nuthatch	1.1	5.6	12.1	0.0	1.6	4.0	
Black-backed woodpecker	2.5	13.6	29.2	0.0	1.4	5.6	
Williamson's sapsucker	14.0	28.4	49.7	3.3	8.6	16.6	
Pileated woodpecker	14.9	30.1	49.3	3.5	7.8	18.4	

<sup>\*</sup>A tolerance level is an estimate of percent of individuals in a population that use a particular range of values. 50% tolerance means that studies showed 50% of sites used by the species were in areas with that snag density.

# ANALYSIS OF EFFECTS – DEAD WOOD HABITAT

#### ALTERNATIVE A - NO ACTION

# **Direct/Indirect Effects**

The area would continue to provide snags and large down wood for cavity dependent species. Additional snags and large down wood would be created as overstory mortality occurs and dead trees eventually fall, creating new foraging and nesting habitat. Cavity excavator populations would likely be maintained or increase. Ongoing and potential increases in disease and insect occurrence could improve habitat by creating foraging and nesting habitat (dead wood).

If a stand replacing fire occurred, habitat would be reduced for many cavity-excavator speices, but others would respond positively. The black-backed woodpecker and Lewis' woodpecker would benefit in the short and mid -term, due to their preference for burned stands. Most other woodpecker species would respond to fire by shifting their use to adjacent unburned or lightly burned stands.

# EFFECTS COMMON TO ALL ACTION ALTERNATIVES Direct/Indirect Effects

Proposed activities would have minimal effects to dead wood habitat because the affected areas are old plantations with small to medium size trees and contain little existing down wood and snag habitat. The majority of high quality habitat for primary cavity excavators (PCE) occurs ouside of these managed units. Measures taken to provide current and future PCE habitat within managed areas include the following:

- > Snag retention
- Down wood retention
- > Replacement trees
- > Retention of large live trees

- > Retention of old forest stand structure
- > Snag creation
- > Down wood placement in riparian areas

Commercial thinning would have a small effect to existing snags and future snag development. Overcrowded plantations are currently producing smaller diameter snags and are a fuels hazard. Thinning these stands would create more resilient conditions for stand longevity and allow larger trees to develop into snags in the future. Regeneration harvest such as seed tree and shelterwood (about 570 acres) may set back snag development in the long term; however these stagnant stands are not expected to grow large diameter trees that would create larger diameter snags.

The few large diameter trees that are present would not be harvested, and all existing snags  $\geq 12$  inches dbh would be retained unless there is a safety concern. Large snags dropped for safety reasons would be left as down wood unless ground fuels become excessive. All functioning snag habitat (broken top, signs of excavation, etc) would be retained wherever possible. A minimum of 16 green trees per acre would be left for future snag development. Thinning units would exceed this number. A minimum of 3-6 down logs per acre (in the dry plant association) or 15-20 down logs per acre (in the moist plant association) are required by the forest plan, however larger diameter down wood may not be available in the harvest units due to the young age of the stands.

Prescribed fire would likely create snags in both the short and mid term where trees are burned or partially burned (Table W5). Potential burning area affecting snags in Table W5 does not include nonforest acres.

**Table W5.** Activities potentially affecting dead wood habitat in the Thomas Creek project (acres).

Alternative	A	В	С	D	Е
Commercial thin	0	687	772	770	1209
Commercial regeneration	0	583	560	420	583
Prescribed fire (forested)	0	600	600	600	600
Total snag effects	0	1870	1932	1790	2392

Any existing snags or down wood in non-commercial thinning units would not be affected by proposed activities. Activities such as temporary road building and use, subsoiling and fuels disposal are expected to have minimal effects to large diameter dead wood habitat. Placement of wood in streams would increase dead wood habitat. The primary source of wood is existing down trees from other areas as they become available.

Snag creation would have a slightly positive effect. It is unknown at this time the number or type of trees that would be identified for snag creation. The largest possible undesirable trees (generally off-site pine) would be selected during unit layout. Other considerations would come into play such as location and safety. Snags would be created by tree climbing and cutting tops off, using explosives near the top 1/3 of the tree, or by girdling trees for a longer term development of a snag. Topped leave trees are more windfirm than natural snags, and are known to develop cavities within 10 years (Rose et al. 2001). Trees

topped above two brank whorls may survive and continue to grow, providing even longer term habitat for cavity excavators and other species that utilize cavities.

In general, managing forests within or towards the historical range of variability should provide habitat for a wide range of cavity excavator species. Managing within Eastside Screens direction also ensures that the old forest habitat that many primary cavity excavators utilize remains available. The majority of high quality habitat for primary cavity excavators occurs outside of managed units. Measures taken to provide current and future habitat within managed areas would also contribute to overall dead wood habitat needs on the forest.

# Cumulative Effects

Personal firewood collection can contribute to snag reductions, however the overall effects on snag dependent wildlife would be small because removal typically occurs along open roads. Other ongoing and proposed activities would have no cumulative effect to dead wood habitat and woodpeckers. Structural habitat for cavity excavating birds could be slightly reduced at the stand scale, but prescribed burning will create snags. The overall effect to the snag analysis area would not likely change more than one percent.

# EFFECTS UNIQUE TO ALTERNATIVE E

#### Direct/Indirect Effects

The addition of 520 acres of tree thinning outside of plantations may reduce future large snag development in these stands in the short term. Mechanical operations in old forest and understory reinitiation stand structure could potentially result in larger snags being dropped as hazard trees. Efforts would be made to minimize this by avoiding high quality snag habitat. All other effects would be the same as other alternatives.

# Forest Plan Consistency

The project would affect less than two percent of the forested areas in the Thomas Creek dead wood analysis area, and effects to dead wood habitat within treatment units is expected to be minimal considering the measures in place to provide current and future habitat. Less than a one percent change is expected in the snag analysis area.

Effects to species viability are determined at the forest scale. Forest-wide average snag densities are relatively close to reference values (Mason and Countryman 2010). At the forest scale there may be areas depleted of snags due to fires, salvage, and past management, but there are also areas with high numbers of snags due to fire suppression and subsequent tree mortality. Recent fires on the forest provide high densities of snags for up to 10 years post-fire. The Thomas Creek project would affect far less than one percent (.003) of the forested land on the Umatilla National Forest.<sup>2</sup>

The overall direct, indirect, and cumulative effects could result in a very small negative habitat trend for primary cavity excavators. The amount of effect from this project would be too small to cause changes to cavity excavator populations. Therefore the project is consistent with the forest plan and continued viability of primary cavity excavators is expected on the Umatilla National Forest.

 $<sup>^{2}\,</sup>$  1.062 million acres; does not include non-forest or forest land in stand initiation stage.

# AFFECTED ENVIRONMENT - PILEATED WOODPECKER

The pileated woodpecker (*Dryocopus pileatus*) is an MIS for both dead and defective wood habitat and old growth habitats. Below is a summary of pileated woodpecker ecology important to providing information pertinent to assessing impact of the project on the species. For additional details see Mellen-McLean (2012a) in the analysis file. Also see the body of work by Evelyn Bull in the Blue Mountains (Bull 1987, Bull and Holthausen 1993, Bull et al. 2005, Bull et al. 2007) and Nielsen-Pincus and Garton (2007).

Pileated woodpeckers are widely distributed in forested areas of eastern North America, westward across a large swath of forest in Canada, and then southward into Montana, Idaho, Washington, Oregon, and California (NatureServe 2015). The pileated woodpecker is ranked as 'widespread, abundant, and secure' globally; more specifically in Oregon it is ranked as 'apparently secure' (NatureServe 2015). The state of Oregon lists pileated woodpecker as 'vulnerable'. The PIF database (Partners in Flight 2012) indicates an increasing population and expect future ongoing stability.

Pileated woodpeckers are associated with late-seral stages of the subalpine, montane, lower montane forests and specifically OFSS and OFMS mixed conifer forests (Wisdom et al. 2000). In the Blue Mountains, densities of nesting pairs of pileated woodpeckers were positively associated with the amount of late structural stage forest and negatively associated with the amount of area dominated by ponderosa pine and the amount of area with regeneration harvests since 1970 (Bull et al. 2007).

Snags, down logs, and large hollow trees are important habitat components for pileated woodpeckers. Approximately 90 percent of the diet of these birds consists of carpenter ants, which are associated with large standing and down wood. Ponderosa pine, Douglas-fir and western larch were preferred species for foraging substrate (Bull and Holthausen 1993). The woodpeckers also use large, decadent trees and hollow grand fir for roosting (Bull et al. 1992). The majority of roost trees were hollow grand fir infected with Indian paint fungus and large ponderosa pine snags.

Within mixed conifer forest, pileated woodpeckers nested preferentially in ponderosa pine and western larch in northeast Oregon (Bull 1987, Nielsen-Pincus and Garton 2007). Bull and Holthausen (1993) found that density of large snags (> 20 inches dbh) was the best predictor of density of pileated woodpeckers in the Blue Mountains.

Due to an increase in dense, multi-canopy stands due to fire suppression, habitat for pileated woodpeckers is increasing across the Blue Mountains (Wisdom et al. 2000). However, densities of large-diameter snags (>21 inches dbh) have declined from historical to current levels (Wisdom et al. 2000, Korol et al. 2002). As discussed in the Dead and Defective Habitat section above, higher densities of large snags (>20 inches dbh) are well below reference conditions (Figure W6). Six or more large snags per acre occurs on only two percent of the snag analysis area, about 2,000 acres. Current large snag density may be a limiting factor for pileated woodpeckers in this area, however mature forest conditions are available to create more snags in the future.

Based purely on stand structure, about 5,000 acres of potential reproductive habitat is present in the older stands. Mean home range size for paired birds in northeastern Oregon was 1,180 acres (Bull and Holthausen 1993), which would include both reproductive and foraging habitat. Almost all forested stands in the entire Thomas Creek project area (11,500 acres) could be used for pileated woodpecker

foraging. Based on habitat distribution, the Thomas Creek project area could reasonably support five or six pair of pileated woodpeckers.

A viability assessment completed for the forest plan revision effort indicates no viability concern for the pileated woodpecker on the Umatilla National Forest. Suitable environments for pileated woodpecker have declined slightly, but are broadly distributed and of high abundance on the Umatilla National Forest (Wales et al. 2011). The Umatilla National Forest provides roughly 200,000 acres of pileated woodpecker source habitat. Source habitat is defined as those habitats contributing to long-term population persistence (Widsom et al. 2000). Overall there is little risk to pileated woodpecker viability (Wales et al. 2011).

Dedicated Old Growth areas are generally providing good habitat for pileated woodpecker forestwide. In 1992, biologists surveyed 100 Dedicated Old Growth areas in the Blue Mountains, including 20 on the Umatilla National Forest (NF). All of the areas surveyed on the Umatilla NF (100%) were occupied by pileated woodpecker at that time (Bull and Carter 1993). The current forest management emphasis on retaining large trees and old forest conditions is beneficial to pileated woodpecker.

# ANALYSIS OF EFFECTS - PILEATED WOODPECKER

# ALTERNATIVE A - NO ACTION

# Direct/Indirect Effects

Existing pileated woodpecker habitat would remain in its current state in the short term. In the mid and long term, more snags would be created as trees die. Stands outside of the plantations that are not currently in an old forest condition could develop into mature stands, which would provide additional habitat.

# EFFECTS COMMON TO ALTERNATIVES B, C, D Direct/Indirect Effects

Alternative B and D would affect about 80 acres of pileated woodpecker reproductive habitat; Alternative C would affect 100 acres. None of these stands are within the larger, more contiguous areas of pileated woodpecker reproductive habitat. All units affecting pileated woodpecker habitat are planned to be thinned. Off-site ponderosa pine would be removed to the extent possible and remaining desirable tree species would be favored.

No snags over 12 inches DBH are targeted for removal, but some may be felled to prevent hazardous conditions to workers. In addition, all live trees  $\geq 21$  inches DBH would be retained, as well as an adequate number of replacement trees for future snag development. Where snags are felled to meet operational requirements for safety, snags  $\geq 12$  inches dbh would be left on the ground to contribute toward down wood densities unless numbers are excessive. Snags would also be created where possible from undesirable ponderosa pine.

The landscape prescribed fire area includes 280 acres of pileated woodpecker reproductive habitat. Prescribed fire is planned to affect mostly the grassy areas in between forest stands. Tree mortality would likely occur, but is expected to be minor and would provide snag habitat.

Other activities such as unit burning, temporary roads, and large wood placement in streams would not affect pileated woodpecker habitat.

The learning design proposed in Alternative C will have no different overall effect than other alternatives; the effects to pileated woodpecker habitat will be slightly more (20 acres) and in different areas.

# Cumulative Effects

Cumulative effects are assessed at the project area scale because it is a large area that potentially could provide habitat for five to six pair of reproducing pileated woodpeckers.

Past logging in old growth forest has reduced the density of large diameter snags in the project area. This is reflected in the existing condition. Personal firewood collection and roadside hazard tree removals would contribute to snag reductions, however the overall effects on pileated woodpecker habitat would be small because removal occurs only along roads. Firewood removal is limited to trees with less than 24 inches stump diameter. Open road density access for firewood cutting is low.

Ongoing activities such as grazing, weed treatments, and recreational activities would have no effect to pileated woodpeckers or their habitat and therefore would not cause cumulative effects in combination with the proposed projects.

# EFFECTS UNIQUE TO ALTERNATIVE E

# **Direct/Indirect Effects**

Additional thinning in OFMS and UR stand structure (210 acres) in pileated woodpecker habitat would not likely render these areas unusable by pileated woodpecker. They would still be used for foraging and possibly even nesting because large trees and snags will be retained. Landscape fire and all other actions would have the same effect as the other alternatives.

#### **Cumulative Effects**

Cumulative effects are the same as the other alternatives.

#### Forest Plan Consistency

The overall direct, indirect and cumulative effects would result in a very small negative habitat trend for pileated woodpecker. Alternatives B, C, and D would affect far less than one percent (.003) of the pileated woodpecker habitat on the forest and Alternative E would also affect less than one percent (.005) of the pileated woodpecker habitat on the forest. The amount of effect from this project is too small to cause changes to the population with any alternative. There would be no impacts on Dedicated Old Growth stands designated by the forest plan (USFS 1990) to provide for the viability of the pileated woodpecker. Thomas Creek project is consistent with the forest plan and thus continued viability of pileated woodpecker is expected on the Umatilla National Forest.

# AFFECTED ENVIRONMENT - THREE-TOED WOODPECKER

Three-toed woodpecker (*Picoides dorsalis*) was selected as a management indicator species in the Forest Plan to represent dead and down tree habitat in mature and old growth lodgepole pine stands (Table W5).

The three-toed woodpecker is a year-round resident throughout forested regions of Canada and Alaska, south into the northern New England states, Minnesota and Michigan, and south into Washington, Oregon, Idaho, and Montana, the Black Hills of South Dakota, Wyoming, Utah, Colorado, eastern Nevada, central Arizona, and southern New Mexico (NatureServe 2015).

Three-toed woodpeckers are considered vulnerable in the state by Oregon Department of Fish and Wildlife and NatureServe. They are considered vulnerable primarily due to the following threats and

risks: salvage of dead trees, fire suppression, and decline in old forests of lodgepole, subalpine fir, and Engelmann spruce (Wisdom et al. 2000). However, habitat for this woodpecker, and associated species, has been increasing in the Blue Mountains (Wisdom et al. 2000). The global status of three-toed woodpecker is 'secure' due to its wide distribution (NatureServe 2015).

This species appears to prefer disturbed coniferous forests with trees that exhibit thin, flaky bark such as spruce and lodgepole pine. Foraging occurs on a variety of tree species inlcuding ponderosa and lodgepole pine, Douglas-fir, and western larch. Most foraging occurs on large standing snags and dying trees. It is suggested that forest type may be less important than the presence of bark beetles (Marshall et al. 2003). A habitat relationship model developed for the three-toed woodpecker in Oregon indicates that the presence of recently dead trees killed by mountain pine beetle was the best predictor of presence of the woodpecker (Chapman 2011). Bark beetles are present in the Thomas Creek area at endemic levels but no current excessive tree mortality was noted during field visits (Insect and Disease Report).

While various forest habitats are used for foraging, nesting appears to be consistently tied to the presence of lodgepole pine. Nesting primarily takes place in unsalvaged, recent, post fire habitat (Mellen-McLean 2012b), and in northeast Oregon they were found nesting in beetle-killed lodgepole pine (Bull 1980).

Potential habitat for three-toed woodpeckers in the Thomas Creek project area was identified by querying the vegetation database for dense, moist mixed conifer, spruce, subalpine fir, and lodgepole pine. Query results indicate that there are about 4,050 acres of potential foraging habitat for three-toed woodpeckers in the project area. Habitat is well-distributed and well-connected throughout the planning area.

Since the draft EA, The 2,600 acres Phillips Creek fire recently created additional dense stands of burned trees in July of 2015, and was not salvage logged. The fire may have created some nesting habitat.

Snag densities between 6 and 12 snags per acre are similar to HRV (Figure W4). Densities higher than 12 per acre show as less than reference conditions; however, the recent fire has provided more high snag density habitat (Figure W5).

Current estimates indicate there are 170,000 acres of three-toed woodpecker habitat on the forest (Wales, personal communication). The Thomas Creek project area contributes about two percent to the forest-wide habitat for three-toed woodpeckers. Although no three-toed woodpeckers have been reported in the area, there are opportunities for foraging and a slight possibility that nesting could occur.

# ANALYSIS OF EFFECTS - THREE-TOED WOODPECKER

#### ALTERNATIVE A - NO ACTION

## Direct/Indirect Effects

Existing three-toed woodpecker habitat would remain in its current state in the short term. The Phillips Creek fire created additional habitat since the draft EA was completed. The stands proposed for treatment are susceptible to mortality from mountain pine beetle (Insect Specialist Report). Within 30 years many of the stressed trees may die due to bark beetle activity. If that were to occur there would be a short term benefit to three-toed woodpecker.

# EFFECTS COMMON TO ALTERNATIVES B, C, D Direct/Indirect Effects

Northern three-toed woodpecker habitat would be affected by proposed alternatives as follows: about 230 acres in Alternative B, 240 acres in Alternative C, 220 acres in Alternative D. About 60 of these acres are proposed for non-commercial thinning only. Affected areas are generally small portions of units and scattered throughout the project area. Some treatment areas in three-toed woodpecker habitat are younger stands in grand fir cover types, but a few units are comprised of 60 to 90 percent ponderosa pine. About 20 acres made up of several small pieces of various units would have regeneration type treatment due to the high percentage of pine. None of these areas are likely three-toed woodpecker nesting habitat due to limited lodgepole pine and the preponderance of smaller diameter trees.

Overall, proposed harvest constitutes a direct reduction of potential three-toed woodpecker foraging habitat and a larger indirect effect due to removal of pine throughout the area that otherwise would provide beetle foraging opportunities in the future. Removal of ponderosa pine in proposed units would reduce the potential for pine beetle attack of stressed ponderosa pine (Insect and Disease Report). While treatments may result in less potential for a large pine beetle outbreak in future years, beetles would continue to occur at endemic levels in the analysis area. Higher numbers of beetles may show up in the Phillips creek fire area.

Landscape prescribed fire would potentially affect 30 acres of spruce and fir that may be occasionally used by three-toed woodpeckers. However, any mortality associated with light burning would probably enhance foraging opportunities.

Since the area is not providing lodgepole pine habitat for three-toed woodpeckers, they have not been documented in the area, no snags over 12 inches DBH are planned to be removed, the amount of existing foraging habitat affected is relatively small, landscape prescribed fire may increase habitat, and the Phillips Creek fire is likely providing new habitat, the overall effect of the Thomas Creek project to three-toed woodpeckers is slight.

Other proposed activities such as non-commercial thinning, down wood placement in streams, and temporary roads would have no effect to three-toed woodpeckers or their habitat.

#### Cumulative Effects -

The effects of past timber harvest and historic fire prevention is reflected in the existing condition. Cumulatively the effects of proposed activities in combination with other past, ongoing, and potential future projects in the analysis area are not expected to have lasting negative impacts to three-toed woodpecker populations. The amount of effect to existing foraging habitat is small (5%) and typical

nesting habitat (lodgepole pine) would not be affected.

Other recent timber sales in adjacent areas (Tollgate and Loon planning areas) had little to zero effect to three-toed woodpeckers. The recent Phillips Creek and Grizzly Bear Complex fires have created prime habitat on the larger landscape.

Ongoing sheep grazing, weed treatments, and recreation activities do not affect woodpecker habitat. Firewood cutting in the area may affect a small amount of three-toed woodpecker habitat.

# EFFECTS UNIQUE TO ALTERNATIVE E

# **Direct/Indirect Effects**

Alternative E would affect about twice as much three-toed woodpecker habitat as the other action alternatives. About 460 acres of three-toed woodpecker habitat would be thinned, or 11 percent of the foraging habitat in the project area. Despite that, overall effects would be about the same as the other action alternatives because it is unlikely that northern three-toed woodpeckers are nesting in the affected areas.

# **Cumulative Effects**

Cumulative effects are the same as other action alternatives. Ongoing sheep grazing, weed treatments, and recreation activities do not affect woodpecker habitat. Firewood cutting in the area may affect a small amount of three-toed woodpecker habitat. These activities in combination with proposed alternatives would have a small effect to three-toed woodpecker habitat.

#### Forest Plan Consistency

The overall direct, indirect and cumulative effects of any of the action alternatives would result in a very small negative habitat trend for three-toed woodpecker. Because the project impacts less than one percent of the three-toed woodpecker habitat on the forest, the amount of effect from this project is too small to cause changes to the population. There would be no impacts on Dedicated Old Growth stands designated by the forest plan (USFS 1990) to provide for the viability of the three-toed woodpecker. Recent large fires have increased the amount of habitat on the forest. The project is consistent with the forest plan and thus continued viability of three-toed woodpecker is expected on the Umatilla National Forest.

# AFFECTED ENVIRONMENT – ROCKY MOUNTAIN ELK

Rocky Mountain elk was selected as a management indicator species in the Forest Plan to represent general forest habitat and winter ranges for big game. Elk are the most popular big game species in northeastern Oregon and are an indicator of the quality and diversity of general forested habitat, the interspersion of cover and forage areas, and the security habitat provided by cover and low levels of human activity.

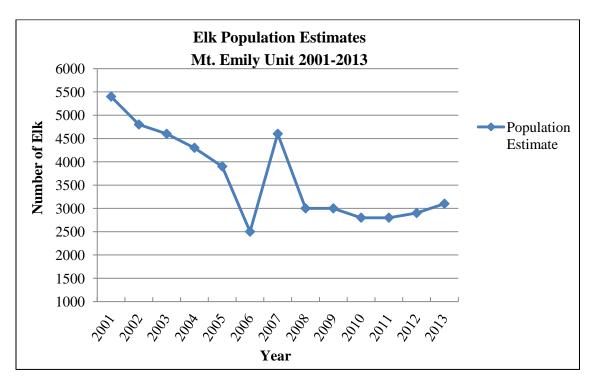
Elk use a variety of habitat types in all successional stages, and use patterns change both daily and seasonally. Elk are primarily grazing animals, preferring a diet of grasses and forbs, but in winter they turn to browsing the tips off twigs from willow, alder, aspen or other woody vegetation (Csuti et al. 2001). Summer nutrition is extremely important for elk survival into the following year. Summer elk forage consists of a combination of lush forbs, grasses, and shrubs high in nutrients and easily digestible. Early summer diets in the Blue Mountains include big huckleberry and snowberry, whereas elderberry, ninebark, and ocean spray become more important in late summer (Korfhage et al. 1980). Generally,

higher elevation wet meadows, springs, and riparian areas in close proximity to forested stands offer these conditions for the longest period. Such areas provide nutritious forage and moist, cool places for bedding and escaping summer heat and insects (ODFW 2003).

The elk population in the Mt. Emily Wildlife Management Unit has been well below the state management objective of 5,700 animals for over a decade (Mark Kirsch, ODFW, pers. commun.). The estimated population has been hovering at around 3,000 animals for the past six years (Figure W7). Reasons for this are largely unknown because there are so many factors that influence elk survival such as hunting success, weather, disease, and predation.

Most of the project area is summer range for elk, but wintering elk may use fringe areas that just barely overlap the project area in the Dry Creek and Thomas Creek riparian areas. Portions of the project area are likely utilized by elk as transitional habitat for movement to and from wintering areas. Known elk calving areas are located a few miles to the west of the project area.

Forest plan standards for elk are specific to each Management Area. The Thomas Creek project area contains several management areas, the largest being MA-E2, Timber and Big Game, where most activities are proposed, followed by MA-C4, Wildlife Habitat. The forest plan also shows a very small area of MA-C3, Big Game Winter Range within the project area, but this area does not appear to be used by wintering elk according to field observations by the state.



**Figure W7.** Mt. Emily elk population estimates.

# Scale of Analysis for Forest Plan Standards

The forest plan standards used to evaluate effects of management actions on elk habitat include percent tree cover, open road density, and an index value from the Habitat Effectiveness Index (HEI) model.

The majoriy of proposed activities fall within Management Area(MA) E2. The MA-E2 area is large enough within the project area boundary to evaluate effects to elk habitat (9,730 acres). The HEI model is generally not used for areas under 5,000 acres. Management Area C4 occurs on both sides of the MA-E2. The MA-C4 analysis area on the west side was extended outside the planning area to the subwatershed line. The MA-C4 analysis area on the east side was extended outside the planning area boundary to the MA-C4 boundary. Riparian Areas (MA-C5) and Dedicated Old Growth (MA-C1) interior to these areas are included. Several proposed harvest units fall within MA-A3 Visuals along Forest Road 31, but this management area does not have forest plan standards for elk. A small area of MA-C3 Winter range (880 acres) on the forest boundary will not be evaulated because it is too small to provide meaningful information, and because no activities are proposed there. The Thomas Creek project does not propose any activities in MA-C3 or in known elk wintering areas.

Currently, the Thomas Creek elk analysis areas are exceeding all forest plan standards for cover, HEI values, and road density (Table W6).

#### Elk Cover

The Forest Plan defines satisfactory cover as a stand of trees at least 40 feet tall and providing 70 percent or more canopy closure. Marginal cover is defined as a stand of trees > 10 feet tall and providing 40 percent or more canopy closure. Both types should have sufficient understory structure to obscure 90 percent of a standing elk at a distance of 200 feet. Marginal cover provides hiding and escape cover, but the tree canopy may be less dense and often provides less security. There is no forest plan standard for marginal cover; rather it is added to satisfactory cover for the total cover standard.

- ❖ Forest plan cover standards are being met in the Thomas Creek project elk analysis areas (Table W6). The majority of satisfactory cover is found in the riparian areas of the creeks, including Thomas, Spring, Dry, Phillips, East Phillips, and Pedro Creeks. Old forest areas are also providing contiguous elk cover.
- ❖ The 2600 acre Phillips Creek fire created a mosaic of moderately burned, lightly burned and unburned area that overall will improve elk habitat in the near future. Moderate severity fire affected about 80 acres previously classified as elk cover in the Thomas Creek analysis. This equates to a 1 percent reduction in total elk cover in MA-C4, from 49 percent to 48 percent (Table W6).

#### Habitat Effectiveness Index (HEI)

The elk habitat effectiveness index model (HEI) is used to predict the influence of forest management activities on elk and other big game species. This model uses the distribution of cover and forage areas, cover quality, and road factors to help indicate how effective an area will be in supporting big game (Thomas et al. 1988). It is intended to be a relative measure of habitat, and does not consider many other factors such as topography, forage quality, weather, predation, and hunting. The HEI model provides an index rating from 0 to 1, with 0 indicating the least effective elk habitat and 1 indicating optimal effective habitat. The index number is multiplied by 100 to get a whole number.

❖ HEI values are within forest plan standards for all of the Thomas Creek project elk analysis areas (Table W6).

#### Roads

Disturbance due to roads is a major factor influencing elk distribution across the landscape as evidenced by the results from a variety of studies conducted in northeastern Oregon (Rowland et al. 2005). Elk have

been found to select habitats preferentially based on increasing distance from open roads (Rowland et al. 2000). Vulnerability and hunting mortality have been found to be higher in forested stands with greater road densities and less hiding cover (Weber et al. 2000). The desired condition in the forest plan is an average of two miles per square mile forest-wide (Forest Plan p. 4-11).

❖ The Thomas Creek project elk analysis areas have between 1 and 1.5 miles of open or seasonally open miles of road per square mile. This is within the desired condition of an average of two miles per square mile (Table W6).

**Table W6.** Forest Plan standards and existing condition of the Thomas Creek elk analysis areas.

Scale	Measure	Forest Plan Desired	Forest Plan Standard	Existing Condition
	Satisfactory Cover	15-20 %	15 %	23 %
Management Area C4	Total Cover	NA	30 %	48 %
(11,070 acres)	HEI	NA	60	66
	Open Road Density	NA	≤ 2.0	1.8
	Satisfactory Cover	15-20 %	10 %	24 %
Management Area E2	Total Cover	NA	30 %	62 %
(9,690 acres)	HEI	NA	45	63
	Open Road Density	NA	<u>&lt; 2.0</u>	1.9

# ANALYSIS OF EFFECTS - ROCKY MOUNTAIN ELK

# ALTERNATIVE A - NO ACTION

# Direct/Indirect Effects

The amount and distribution of cover and roads would not likely change in the short-term. Over the mid and long-term (beyond 20 years), some stands could grow into thicker hiding cover while others may deteriorate. New openings may be created where trees fall, which would allow pockets of foraging areas to develop.

# EFFECTS COMMON TO ALL ACTION ALTERNATIVES

# Direct/Indirect Effects

# Elk Cover and Habitat Effectiveness Index (HEI)

Satisfactory cover and HEI values would remain well above forest plan minimum standards (Table W7).

A dozen of the proposed treatment units are currently providing satisfactory cover, even though they are relatively young stands that were clear cuts at one time. Many other proposed treatment units are providing marginal elk cover. Alternative D removes the least amount of cover and Alternative E removes the most. Cover remains well above Forest Plan standards with all alternatives (Table W7).

The HEI value slightly increases for all alternatives (Table W7). This is because cover to forage spacing is improved by the Thomas Creek project. There are slight differences in acreage between alternatives, but not enough to change HEI, so the overall effect to HEI is equal between all of the alternatives.

**Table W7.** Forest Plan standards and comparison of alternatives in the Thomas Creek elk analysis areas.

Caala	Massaura	Forest Plan	Existing	Alternative			
Scale	Measure	Standard	Condition A	В	С	D	Е
Management	Satisfactory Cover	15 %	23 %	22 %	19 %	22 %	21 %
Area C4 (11,070 acres)	Total Cover	30 %	48 %	45 %	45 %	44 %	44 %
(11,070 deres)	HEI	60	66	67	67	67	67
Management	Satisfactory Cover	10 %	24 %	22 %	22 %	22 %	22 %
Area E2 (9,690 acres)	Total Cover	30 %	62 %	53 %	53 %	53 %	52 %
(5,050 deles)	HEI	45	63	65	65	65	65

**Table W8.** Elk cover net reduction by Alternative in the Thomas Creek elk analysis areas (acres).

		Alternative					
	В	Е					
Satisfactory Cover	-367	-367	-353	-525			
Marginal Cover	-780	-749	-695	-902			
Total Cover Change	- 1147	- 1116	- 1048	- 1427			

# Elk Forage

Early-seral openings in moist forest provide important late summer forage for elk. Opening up dense

stands of trees would increase the availability of elk forage in the short and mid-term, with hiding cover remaining available in some areas and developing gradually in others, depending on harvest level (Table W9). Proposed landscape burning would also enhance elk forage on an additional 980 acres. Controls to reduce or eliminate potential weed spread from logging operations would be in place (Invasive Plants Specialist Report). Any new weed sites will be treated as coordinated through the forest invasive plants program. Overall forage for elk would be improved by any proposed alternative.

**Table W9.** Potential transitory forage created by timber harvest and non-commercial thinning by Alternative in the Thomas Creek project area (acres).

Prescription creating	Alternative					
elk forage	В	С	D	Е		
Clear cut, seed tree, and group selection	733	703	708	733		
Thinning	775	728	545	1116		
Non-commercial thinning	1037	1032	1037	1037		
Total forage increase	+ 2545	+ 2463	+ 2290	+ 2886		

#### Roads

No changes in open road densities would occur. The project would require temporarily opening 14 miles of closed roads for implementation. Harvest equipment and contractor vehicles using roads that have been closed for many years may cause elk to temporarily avoid these areas during logging activities. Generally only one road or network of roads would be used at a time. The closed roads would not be open to the public during project activities and would remain closed after the project is completed.

Maintenance of open roads, removal of danger trees along roads, and the construction and use of temporary roads would have a minimal impact to elk. New temporary road would likely be less than one mile total and consist of several small segments accessing different harvest units. Temporary roads would be closed to the public and revegetated upon completion of the project.

Because activities would take place gradually over several years, and would be spread out spatially, no effects to the elk population would be caused by the transportation plan for this project.

#### **Riparian Treatments**

Riparian habitat that is important for elk and other wildlife would be affected in all alternatives with slight differences between each. The intent is to remove ponderosa pine and plant the area with more appropriate trees for the site. The expected outcome is a light thinning that retains adequate shade over live water. In some of the proposed riparian treatment areas, very little would be removed. Reduction of stunted ponderosa pine and planting with more appropriate species would improve riparian habitat over the long term. No negative effects to elk are expected from riparian treatments.

# Cumulative Effects

Past timber harvest and roading is reflected in the existing condition. The recent Phillips Creek fire has also been incorporated into the existing condition. In addition to proposed timber harvest and roads, associated activity such as subsoiling, large woody debris placement, snag creation, and tree planting would have no effect to elk. Ongoing activities in the area include sheep grazing, weed treatment, recreation uses, and firewood collection.

The addition of proposed activities would increase the amount of disturbance in the area but is not expected to negatively affect elk distribution or populations. Many other factors besides habitat influence elk numbers, such as weather, predation, and hunter success. In general, little change in elk and deer numbers would be expected with the current hunting strategies set forth by ODFW.

# Forest Plan Consistency

The overall direct, indirect, and cumulative effects would result in a slightly positive habitat trend due to increases in forage habitat. Forest plan standards for elk habitat would be met, and no changes to the elk population are expected. The project is consistent with the forest plan and thus continued viability of Rocky Mountain elk is expected on the Umatilla National Forest.

# AFFECTED ENVIRONMENT – AMERICAN MARTEN (PINE MARTEN)

The American marten (*Martes americanus*) was selected as a Management Indicator Species in the Forest Plan to represent mature and old growth stands at high elevations (Table W2).

American marten are found throughout Canada and Alaska, south through the Rockies, Sierra Nevada, northern Great Lakes Region, and northern New England. In Oregon, they occur in the southern Oregon Coast Range, Siskiyou Mountains, Cascade Mountains, and Blue Mountains (Marcot et al. 2003). The global conservation status of marten is considered 'widespread, abundant, and secure' (NatureServe 2015).

American marten are typically associated with late-seral coniferous forests with closed canopies, large trees, and abundant snags and down wood (Zielinski et al. 2001). Wisdom et al. (2000) lists subalpine and montane forests in old multi- and single-story, and unmanaged young multi-story structural stages as providing source habitat for American marten in the Columbia Basin. A study in northeastern Oregon showed that martens selected for areas with denser canopy, more canopy layers, larger diameter live and dead trees, larger down logs, and closer proximity to water as compared to what was available in the area (Bull et al. 2005).

Marten use a variety of structures for rest and den sites, such as tree cavities, mistletoe brooms, and accumulations of down logs (Bull and Heater 2000). Bull et al. (2005) found density of potential rest sites was significantly higher in marten home ranges than in unoccupied areas.

In addition to providing rest and den sites, down wood is an important component of marten habitat because the primary prey of martens is small mammals associated with down wood. These small mammals include voles, snowshoe hares and squirrels in northeast Oregon (Bull and Blumton 1999). In the winter, they forage beneath the snow in downed wood for prey.

In a comparison of historical versus current conditions in the Blue Mountains, marten habitat appears to be strongly increasing (Wisdom et al. 2000). Suitable environments for marten are broadly distributed and of high abundance on the Umatilla National Forest, and there has been little change from historical to

current conditions (Wales et al. 2011). The Umatilla National Forest provides roughly 100,000 acres of marten source habitat. Source habitat is defined as those habitats contributing to long-term population persistence (Widsom et al. 2000).

There are two reports of marten outside but within two miles of the project area boundary. One marten was seen about one mile north of the project area, and another was found dead on Highway 204. It is possible that the Thomas Creek project area could support marten. A study in Eastern Oregon indicated that the average home range size for males was about 6,700 acres, and the average for females was about 3,500 acres (Bull and Heater 2001). Home ranges typically include both source habitat as well as foraging areas and nonhabitat. The authors suggest that a marten reproductive pair would likely have higher success where an average of 6,700 acres are available for foraging and denning.

Recent vegetation data was used to determine the current amount and distribution of marten habitat in the project area. The project area provides about 3,000 acres of well-distributed marten habitat. In combination with habitat adjacent to the project area, it is possible that the area would support a pair of marten.

# ANALYSIS OF EFFECTS - AMERICAN MARTEN

# ALTERNATIVE A - NO ACTION

# Direct/Indirect Effects

As long as fires do not occur in the planning area, existing marten habitat would remain in its current state in the short and mid term. Overstocked plantations would continue to deteriorate and develop excessive ground and ladder fuels and would not likely grow into marten habitat. Old forest multi-strata is expected to increase by 3 percent in 50 years time in the HRV analysis area, but this is similar to the amount expected in Alternative B (Silviculture Report).

# EFFECTS COMMON TO ALTERNATIVES B, C, D Direct/Indirect Effects

Marten habitat would not be affected by tree cutting proposed in Alternatives B, C, or D because treatments are proposed in previously managed stands that do not provide source habitat for marten. The landscape prescribed fire boundary includes about 150 acres of marten habitat. The expected result would mimic historic patterns of fire disturbance, with a mosaic of burned and unburned grassland and areas of tree mortality in forested portions.

No temporary roads are proposed within marten habitat. Less than two miles of the haul route goes through or adjacent to marten habitat, and it is unknown at this time if any hazardous trees exist in those segments. Other associated activity such as subsoiling, burning, tree planting, and snag creation would have no effect to marten.

Riparian treatments would not affect marten habitat because they are primarily previously managed areas that were planted with ponderosa pine, and there will be a reduced level of tree removal in these areas. Placement of large wood in streams would ultimately enhance marten habitat.

Alternative C has added buffers around units that only affect very small slivers of marten habitat. The extent that thinning in these areas on edges of stands is minimal since the main units do not contain marten habitat, therefore there is no value added for marten. It is unlikely that edge treatments at this scale would result in any meaningful information about marten habitat and use of the area.

# Cumulative Effects

Cumulative effects are assessed at the project area scale because it is a large area that potentially could provide habitat for one or more reproducing female marten. Proposed activities in combination with other past, ongoing, and potential future projects are not expected to cause cumulative effects to marten or their habitat. Past timber harvest and road construction has occurred throughout the project area, which is reflected in the existing condition. Ongoing sheep grazing and weed treatments generally do not affect marten habitat. Forest recreation activities such as hunting, hiking, sightseeing, and berry picking take place during the day time when marten are less active. Open road densities would remain low, which restricts the amount of human disturbance.

# EFFECTS UNIQUE TO ALTERNATIVE E

# Direct/Indirect Effects

Alternative E proposes thinning in 170 acres of existing marten habitat. Thinning trees in these stands would make these areas less suitable for marten denning in the short and mid-term. With the addition of landscape burning, a maximum of 320 acres of marten habitat would be affected. This is about 15 percent percent of the marten habitat in the project area.

#### Cumulative Effects

Cumulative Effects are the same as other action alternatives except that 170 additional acres of marten habitat would be affected by the proposed activities. This in combination with ongoing activities would cause a small reduction of habitat in the short term.

# Forest Plan Consistency

The overall direct, indirect, and cumulative effects of Alternative E would result in a small negative habitat trend for marten. Because the project impacts less than 1 percent (.003) of the marten habitat on the forest, the the amount of effect from this project is too small to cause changes to the population. All other action alternatives would have less effect. Adjacent recent timber sale areas similarly affected very little marten habitat. Tollgate EIS indicates .015 of forestwide marten habitat affected, and Loon had zero. The Thomas Creek project is consistent with the Forest Plan and thus continued viability of marten is expected on the Umatilla National Forest.

#### AFFECTED ENVIRONMENT – NORTHERN GOSHAWK

The northern goshawk is not a Management Indicator Species in the Umatilla Forest Plan, and is not listed as Threatened, Endangered, or Sensitive. However, the Eastside Screens provides for specific protections for goshawk nesting territories (USFS 1995). Northern goshawk is considered 'sensitive-critical' by the state of Oregon.

The northern goshawk is a habitat generalist at large spatial scales, however it typically nests in a narrow range of structural conditions (Squires and Kennedy 2006). Goshawks prefer mature forest with large trees, and relatively closed canopy with an open understory for nesting. Nests are frequently found near the lower portion of moderate slopes and near water. A study in the Blue Mountains found that structural stage, tree basal area, and low topographic position reliably discriminated between nests and random sites. Positive correlations were found between fledging rate and tree basal area within 1 ha of the nest (McGrath, et al. 2003).

A query of vegetation data for areas with at least 50 percent tree cover and the presence of large diameter trees resulted in approximately 2,300 acres of potential goshawk nesting habitat. These stands are well distributed throughout most of the planning area. Quality nesting habitat would typically be within one-quarter (1/4) mile of water, in the lower portion of the slope, and often on the north facing slope. These areas will be identified and surveyed prior to project implementation. If active nests are found at any time, they would be protected as specified in the project design features.

# ANALYSIS OF EFFECTS -- NORTHERN GOSHAWK

#### ALTERNATIVE A - NO ACTION

# **Direct/Indirect Effects**

Forest stand structures would continue to diverge from range of variability values in the same manner as Alternative B, and only 1 percent different from Alternative E (Silviculturist Report). Old forest multistrata is expected to increase by 3 percent in 50 years time. In the mid and -long term, no change is expected in the amount of available habitat for goshawk.

# EFFECTS COMMON TO ALL ACTION ALTERNATIVES Direct/Indirect Effects

Timber harvest and fuels treatments follow the Eastside Screens requirements (USFS 1995) to maintain late old structure stands and connectivity corridors. The intent is to provide short term protections for species dependent on old forest such as northern goshawk.

A small amount of commercial thinning is proposed on edges of potential goshawk habitat (Table W10). Thinning in these areas would would potentially make a small area unsuitable for nesting but would still be used for foraging. The largest area is 13 acres. Design criteria to leave all trees  $\geq$  21 inches dbh, leave all snags  $\geq$  12 inches dbh, and protect nest sites if found ensure that goshawk would be minimally affected.

**Table W10.** Mechanical harvest and prescribed burning in goshawk habitat (acres).

Alternative	A	В	С	D	Е
Commercial thin	0	20	10	20	125
Prescribed fire	0	190	190	190	190
Total acres	0	210	200	210	315

The landscape prescribed fire boundary includes about 190 acres of goshawk habitat. These fires are intended to burn primarily nonforested areas, but will likely create some tree mortality. The area is currently outside of the historic fire regime and fire is a natural part of these areas. Minor effects to these 190 acres are expected (less than 10 percent mortality). Fire of this type may actually attract goshawk prey species into the area if shrubs respond and snags are created.

Proposed non-commercial thinning, temporary roads, and other connected actions would not affect goshawk habitat. Snag creation would not be implemented during raptor nesting seasons to avoid any disturbances from from blasting or tree topping.

Riparian treatments would not affect goshawk habitat because they are previously managed areas that were planted with ponderosa pine, and there will be a reduced level of tree removal in these areas.

A reasonable estimate of actual effects to potential goshawk habitat would be less than five percent of the goshawk habitat in the area, leaving over 2,000 acres unaffected. The majority of effect stems from prescribed burning, some of which has already occurred naturally with the Phillips Creek Fire in 2015.

If active nests are found at any time, the nest area would be protected as specified in the project design criteria.

#### Cumulative Effects

Cumulative effects are assessed at the Thomas Creek project area scale because it is large enough to potentially support several goshawk nesting territories. Past timber harvest reduced potential goshawk habitat in the area by clearcutting stands. Those stands remain unsuitable for nesting because they are now overstocked with small trees. The proposed activities would move these stands toward a natural condition and provide an increased potential for goshawk habitat to develop in the long term.

Ongoing activities in the area include sheep grazing, weed treatment, recreation uses, and firewood collection. The addition of proposed activities would increase the amount of disturbance in the area for a short time, but would not negatively affect goshawk. No nesting territories are known in the area at this time.

#### AFFECTED ENVIRONMENT – MIGRATORY LANDBIRDS

Neotropical migratory birds are those that breed in the United States and winter south of the border in Central and South America. Continental and local declines in population trends for migratory and resident landbirds have developed into an international concern. Roughly one half of all birds occurring on the Umatilla Forest are Neotropical migrants. Many of these species are associated with old forest, riparian areas, or unique features such as aspen, shrubs, and meadows.

Partners in Flight (PIF) led an effort to complete a series of Bird Conservation Plans for the entire continental United States to address declining population trends in migratory landbirds (Rich et al. 2004). These plans are used to address the requirements contained in Executive Order (EO) 13186 (January 10, 2001), Responsibilities of Federal Agencies to Protect Migratory Birds.

The Conservation Strategy for Landbirds in the Northern Rocky Mountains of Eastern Oregon and Washington (Altman 2000) identifies the following priority habitat types: Dry Forest, Late Successional Mesic Mixed Conifer, Riparian Woodland and Shrub, and several "unique" habitats (Table W11).

Table W11. Priority Habitat Features and Associated Landbird Species for Conservation in the Northern Rocky Mountain Landbird Conservation Region of Oregon and Washington (Altman 2000).

Habitat Type	Habitat Feature/Conservation Focus	Focal Species
	Large patches of old forest with large trees and snags	White-headed woodpecker
Dry Forest	Old forest with large trees & snags interspersed with grassy openings and dense thickets	Flammulated owl
	Open understory with regenerating pines	Chipping sparrow
	Patches of burned old forest	Lewis' woodpecker
	Large snags	Vaux's swift
	Overstory canopy closure	Townsend's warbler
Mesic Mixed Conifer	Structurally diverse; multi-layered	Varied thrush
Confer	Dense shrub layer in the forest understory or forested openings	MacGillivray's warbler
	Edges and openings created by wildfire	Olive-sided flycatcher
	Large snags in riparian woodland	Lewis' woodpecker
Riparian	Riparian woodland canopy foliage and structure	Red-eyed vireo
Кірапап	Riparian woodland understory foliage and structure	Veery
	Shrub density Willow/alder shrub patches	Willow flycatcher
	Subalpine Forest	Hermit thrush
	Montane meadow	Upland sandpiper
Unique (special) Habitats	Steppe shrubland	Vesper sparrow
	Aspen	Red-naped sapsucker
	Alpine	Gray-crowned rosy finch

# **Dry Forest Habitat**

The dry forest habitat type includes coniferous forest composed exclusively of ponderosa pine, or dry stands co-dominated by ponderosa pine and Douglas-fir or grand fir (Altman 2000). Bird species associated with dry forest have shown the greatest population declines and range retractions in the northern Rocky Mountain province (Altman 2000). In particular, bird species highly associated with snags and old-forest conditions have declined. These species include white-headed woodpecker, flammulated owl, white-breasted nuthatch, pygmy nuthatch, Williamson's sapsucker, and Lewis' woodpecker.

Habitat for focal species such as white-headed woodpecker, flammulated owl, and Lewis' woodpecker is very limited here, because the project area is predominantly a cool moist forest.

Currently there are only about 90 acres of single strata, large diameter ponderosa pine stands in the project area.

#### Late Successional Mesic Mixed Conifer Habitat

Mesic mixed conifer habitats are primarily cool Douglas-fir, grand fir sites and larch sites. The desired condition is a multi-layered old forest with a diversity of structural elements. Conservation focal species and habitat conditions include: Vaux's swift for large snags; Townsend's warbler for overstory canopy closure, varied thrush for structural diversity and multiple layers; MacGillivray's warbler for a dense shrub layer in forest openings or understory; and olive-sided flycatcher for edges and openings created by fire.

Mesic mixed conifer is the dominant habitat type in the project area. There are about 3,000 acres of primarily grand fir forest with multiple layers and large trees in the project area. Dense shrub layers in forest openings are found in many areas. The Phillips Creek wildfire recently created large snags, edges, and openings in late successional moist forest on about 200 acres within the project planning area. It also reduced closed canopy and structural diversity on those same acres.

# Riparian Woodland and Shrub Habitat

Riparian vegetation is particularly important to Neotropical migratory songbirds (Sallabanks et al. 2001:217). This habitat type includes riparian communities dominated by shrubs (willow, alder, etc.) that occur along bodies of water or in association with wet meadows and wetlands (Altman 2000). The desired condition is a structurally diverse vegetative community of native species that occur in natural patterns relative to hydrological influences. Focal species and habitat conditions include: Lewis' woodpecker for large snags; red-eyed vireo for canopy foliage and structure; veery for understory foliage and structure; and willow flycatcher for willow/alder shrub patches.

Riparian hardwood habitat is plentiful along numerous streams in the area. Cottonwood, maple, and alder are abundant along Phillips Creek. Alder and willow patches are also common throughout the project area.

In 2015, the Phillips Creek fire burned many cottonwood trees that will now provide habitat for Lewis' woodpecker.

#### Subalpine Forest

Within the project area there is a minor amount of subalpine fir and Engelmann spruce cover types, and no lodgepole pine cover type. No activities are proposed in any of these areas.

#### Montane Meadow

There is no true montane meadow in the Thomas Creek project area. This habitat type includes wet and dry meadows dominated by herbaceous vegetation and grass at moderate and high elevations. These meadows are generally associated with streams and springs.

# Steppe-Shrubland

Steppe-shrublands occur in a wide range of habitat types, including grassland, sagebrush, montane meadows, fallow fields, juniper-steppe, and dry open woodlands and openings in forested habitats (Altman 2000). Habitat criteria (objectives) for the steppe-shrubland habitat type include maintaining a mosaic of steppe and shrubland habitats with less than 10 percent tree cover. Associated bird species include vesper sparrow, lark sparrow, Brewer's sparrow, and long-billed curlew.

There are about 3,000 acres of these habitat types. Grassy ridges in particular are abundant and scattered throughout the project area.

#### Aspen

One small aspen stand (.01 acre) is known in the proejct area. Bird species associated with aspen include the red-naped sapsucker, Williamson sapsucker, tree swallow, northern pygmy owl, western screech owl, and others. Aspen stands have declined throughout the Blue Mountains, due to a combination of factors including fire suppression, competition with invading shade-tolerant species, overgrazing (livestock and wild ungulates), and drought.

# <u>Alpine</u>

There is no alpine forest in the area.

#### ANALYSIS OF EFFECTS- MIGRATORY LANDBIRDS

#### ALTERNATIVE A - NO ACTION

#### Direct/Indirect Effects

Without treatments structure would likely remain in its current state in the short term. Old clearcuts with off-site ponderosa pine would continue to show stagnant growth. In the long term, mature and old forest would begin to deteriorate but would likely continue to provide rich snag and down wood habitat. As long as fires do not occur in the planning area, there would be increasing amounts of old forest, stands with higher tree densities, mid and late seral species, and susceptibility to natural disturbances (Silviculture Specialist Report). Wildland fire under these conditions would exhibit extreme fire behavior and potentially remove large amounts of old forest. Bird species that depend upon unburned forest would be displaced if a large stand-replacing fire occurred, but other birds that depend upon burned forest would increase.

# EFFECTS COMMON TO ALL ACTION ALTERNATIVES

#### **Direct/Indirect Effects**

The short term reduction of forest cover in regeneration harvest stands (580 acres) would reduce habitat for some birds, but it would also allow restoration of the stands to appropriate conditions. These units are interspersed throughout the project and most will be adjacent to other forest stands providing mature forest habitat. Units to be thinned will continue to provide forest cover to varying degrees. All large trees ( $\geq$  21 inches DBH) and all large snags ( $\geq$  12 inches DBH) would be left in harvest units. This would reduce the extent of effects to many birds of concern. Hazard trees and snags may have to be cut down but that is expected to be minor.

Landscape prescribed fire would occur in two areas, one is 750 acres and the other is 230 acres. Burning would not occur during the nesting season. The expected result would mimic historic patterns of fire

disturbance, with a mosaic of burned and unburned grassland and slow creep through forested portions.

#### Dry Forest Habitat

Dry forest habitats described above would not be affected by proposed harvest in alternatives B through D. Only 8 acres in the ponderosa pine cover type would be commercially thinned in Alternative E. This would create a small amount of habitat for species associated with single story old forest ponderosa pine in the long term. Landscape prescribed fire would not affect ponderosa pine cover types.

#### Mesic Mixed Conifer Habitat

Silvicultural treatments would serve to increase diversity in moist forest by restoring overly dense young stands in old clear cuts to a more resilient state. Proposed mechanical treatments in Alternatives B, C and D would not affect old forest. Landscape prescribed burning would primarily occur in open areas adjacent to moist forest stands. The expected result would mimic historic patterns of fire disturbance, with a mosaic of burned and unburned grassland and areas of tree mortality in forested portions.

Alternative E would move less than 200 acres of moist old forest multi story (OFMS) to old forest single story (OFSS). While this would decrease OFMS in the short term, over the course of 50 years, total old forest multi-story acres (OFMS) is expected to continue increasing in the area (Silviculture Report). Therefore habitat for birds associated with this condition would remain abundant under all alternatives.

# Riparian

Riparian shrub habitat would likely increase as a result of this project. All action alternatives would remove some pine from riparian areas, which would allow shrub habitat to further develop. Landscape prescribed burning would creep into riparian areas and also create more open areas where shrubs can receive light. Overstory canopy closure and large snags would be maintained.

#### Other Unique Habitats

Proposed burning in steppe shrubland habitats would serve to invigorate shrub sprouting and reduce stagnant conditions in grasslands on about 400 acres. Aspen, montane meadow, subalpine and alpine bird habitats would not be affected by proposed activities.

#### Cumulative Effects

The scale of analysis for cumulative effects to birds is the project area. Past, present, and reasonably foreseeable activities in the area in combination with proposed projects would not cause cumulative effects to focal bird species habitats. Past activities such as timber harvest is reflected in the existing condition. The recent Phillips Creek fire has also been incorporated into the existing condition. Ongoing sheep grazing, road maintenance, and recreational activity would not have a cumulative effect on birds of concern due to the limited duration, amount, intensity and location of these and proposed activities.

# AFFECTED ENVIRONMENT – THREATENED, ENDANGERED, AND SENSITIVE (TES) WILDLIFE AND INVERTEBRATE SPECIES

An endangered species is an animal or plant species listed under the Endangered Species Act that is in danger of extinction throughout all, or a significant portion, of its range. A threatened species is an animal or plant species listed under the Endangered Species Act that is likely to become endangered within the foreseeable future throughout all or a significant portion of, its range.

A sensitive species is an animal or plant species identified by the Forest Service Regional Forester for

which species viability is a concern either a) because of significant current or predicted downward trend in population numbers or density, or b) because of significant current or predicted downward trends in habitat capability that would reduce a species existing distribution.

Threatened, Endangered and Sensitive Species addressed on the Umatilla National Forest include those that have been documented from a valid, recorded observation, or suspected as likely to occur based on available habitat to support breeding pairs/groups. Whether these species may occur in the project analysis area is determined by observation records, vegetative and wildlife species inventory and monitoring, published literature on the distribution and habitat utilization of wildlife species, information provided by the U.S. Fish and Wildlife Service, and the experience and professional judgment of wildlife biologists on the Umatilla National Forest (Table W12).

Because there is no indication that they may occur in the project analysis area, peregrine falcon and upland sandpiper will not be discussed further. Because there is no indication that they may occur in the project analysis area, the following invertebrate species will not be discussed further: Columbia clubtail, Yuma skipper, Intermountain sulphur, and Hell's Canyon landsnail.

The species that are addressed in this section are: Canada lynx, gray wolf, wolverine, Townsend's bigeared bat, bald eagle, Lewis' woodpecker, white-headed woodpecker, Columbia spotted frog, Rocky Mountain tailed frog, fir pinwheel, and Johnson's hairstreak.

**Table W12.** TES Wildlife and invertebrate species and their potential to occur within the Thomas Creek project area.

Species	Status	Umatilla Forest	Thomas Creek project area	
Canada lynx Lynx canadensis	Threatened	Documented	Not Expected	
Wolverine Gulo gulo	Sensitive	Suspected	Possible	
Gray wolf Canis lupus	Sensitive	Documented Documented		
Townsend's big-eared bat Corynorhinus townsendii	Sensitive	Documented	Possible	
Bald eagle Haliaeetus leucocephalus	Sensitive	Documented	Possible	
Peregrine falcon Falco peregrinus	Sensitive	Suspected	Not expected	
White-headed woodpecker Picoides albolarvatus	Sensitive	Documented	Possible	
Lewis' woodpecker Melanerpes lewis	Sensitive	Documented	Possible	
Upland sandpiper Bartramia longicauda	Sensitive	Suspected	Not expected	
Columbia spotted frog Rana luteiventris	Sensitive	Documented	Possible	
Rocky Mountain tailed frog Ascaphus montanus	Sensitive	Documented	Possible	
Fir pinwheel Radiodiscus abietum	Sensitive	Documented	Possible	
Johnson's hairstreak Callophrys johnsoni	Sensitive	Suspected	Possible	
Columbia clubtail Gomphus lynnae	Sensitive	Suspected	Not expected	
Yuma skipper Ochlodes yuma	Sensitive	Suspected	Not expected	
Intermountain sulphur Colias christina pseudochristina	Sensitive	Suspected	Not expected	
Hells canyon land snail  Cryptomastix populi	Sensitive	Suspected	Not expected	

#### Canada lynx

Historical records indicate that Canada lynx may have been intermittently present, but currently the Umatilla Forest is considered unoccupied (USFS 2006). The U.S. Fish and Wildlife Service concluded that lynx may occur on the forest as dispersers that have never maintained resident populations. This is based on the lack of reproduction records, limited verified records of lynx, low frequency of occurrences, and correlations with cyclic highs with populations in Canada (USFWS 2003). Bobcats are frequently mistaken for lynx, especially in this area where large grayish bobcats are common. Lynx have never been verified on the Walla Walla Ranger District.

#### Wolverine

The current range of wolverines in the U.S. includes the North Cascades of Washington, the northern Rocky Mountains of Idaho, Wyoming, Montana, and eastern Oregon, the southern Rocky Mountains of Colorado and Wyoming, and the Sierra Nevada of California (USFWS 2013).

The northern Rocky Mountains, including the eastern Oregon Blue Mountains, are considered the southern portion of the species range. Wolverines here require high elevation alpine forest with deep persistent snow (Copeland et al. 2010). Most year-round habitat is found near the tree line in conifer forests, and in cirque basins and avalanche chutes that have food sources such as marmots, voles, and carrion (Inman et al. 2011). The wolverine is an opportunistic scavenger, with large mammal carrion the primary food source year-round. They depend on carnivores like wolves, cougars, and bears in part to provide scavenging opportunities (Banci 1994, Van Dijk, etal. 2008). They are known to travel 18-24 miles in a day in their daily hunt for food (Banci 1994).

The nearest known area of confirmed wolverine activity is in the Wallowa Mountain Range, approximately 25 miles to the southeast. Extensive track and camera surveys and resulted in the detection of four different individual wolverines in the Eagle Cap Wilderness in the years 2010-2012 (Magoun et al. 2013). The Wallowa Range appears to have enough snow cover to support wolverine, but at this time it does not appear that a breeding population exists (Magoun et al. 2013).

The Umatilla forest contains very little alpine or high elevation tree line habitat and provides relatively small areas with persistent snow cover in comparison to areas with known wolverine populations. However the forest may provide foraging opportunities for individuals.

Numerous anecdotal sightings have been reported on the forest over the years, although none of them could be verified. Various winter track surveys have been conducted intermittently on the forest, and no tracks have been detected. There are also ongoing efforts to detect American marten and wolverine on the forest with cameras, but not on the scale that is necessary to complete a systematic survey.

The project area is not within or near any high elevation alpine forest that would support deep snow into May for wolverine reproduction. There are no cirque basins, avalanche chutes, or open boulder slopes within 10 miles of the project area.

#### Gray wolf

The project area is within the Northern Rocky Mountain Distinct Population Segment (DPS) of the gray wolf, which was recently removed from the Endangered Species List (USFWS 2011, USFWS 2009). As of November 15, 2015, the state of Oregon also removed the gray wolf from the state endangered species list.

The gray wolf is a habitat generalist inhabiting a variety of plant communities typically containing a mix

of forested and open areas with a variety of topographic features. The project area provides abundant deer and elk, as well as other prey species for wolves year-round. A wolf pack known as the Mt. Emily pack utilizes areas in and around the Thomas Creek planning area. The Mt. Emily pack was not denning within the Thomas Creek project area in 2015 (Russ Morgan, ODFW, pers. commun.).

The Mt. Emily wolf pack has depredated on domestic sheep that graze in the Thomas Creek planning area. The permittee for the North End Sheep Allotment is expected to continue to adhere to the Oregon Wolf Plan (ODFW 2010) which includes provisions to deter wolf depredation before any lethal control is considered.

# Townsend's big-eared bat

A known big-eared bat roost is present in a collection of old buildings about 6 miles outside of the project area. The big-eared bat is strongly associated with spacious cavern-like structures for roosting during all stages of its life cycle (Gruver and Keinath 2006). Typically, they use caves and mines, but have been noted roosting in attics and abandoned buildings, large hollows of redwood trees, in lava tubes and under bridges (Gruver and Keinath 2006). These sites are highly sensitive to disturbance and human interference.

Individuals or small groups of bats may also day roost in hollow and creviced trees and snags near water for a limited time, but tend to stay within a few miles of colonial roosts (Perkins and Schommer 1992). Therefore they are not expected to be present near the proposed activities.

#### Bald eagle

Bald eagles may travel through the project area. They have been seen at both Langdon and Jubilee Lakes, but no roost or nest sites are known in the project area. The nearest documented nest is on the Grande Ronde River, but has not been used for several years. A small number of bald eagles winter along the lower Umatilla River, west of the project area.

#### White-headed woodpecker

White-headed woodpecker habitat is typically open ponderosa pine with large trees and snags. This species relies almost exclusively upon the seeds from large ponderosa pine cones for its foraging needs. This species will also utilize insects that are gleaned off ponderosa pine trees. Large ponderosa pine snags are utilized for nesting purposes. No records of white-headed woodpeckers are known in the project area. A small amount of this type of habitat (90 acres) is found in the project area as scattered small stands. The majority of ponderosa pine stands are multi-stata.

In addition to evaluating white-headed woodpecker habitat in the project area, snag habitat is evaluated at the watershed scale in the Management Indicator Species, primary cavity excavator section of this chapter.

#### Lewis' woodpecker

Lewis' woodpecker may occur, but there are no records for this part of the district. Lewis woodpeckers tend to use open ponderosa pine forest, open riparian woodland dominated by cottonwood, and burned pine forest (Tobalske 1997). Open ponderosa pine is scarce (90 scattered acres), and there is no burned pine forest. Cottonwood woodland is present along Phillips Creek and young cottonwood is establishing in some of the more recent clear cuts.

The 2015 Phillips Creek fire burned some pine forest and burned many of the cottonwood trees along Phillips Creek, and this will likely attract Lewis' woodpecker.

In addition to evaluating Lewis' woodpecker habitat in the project area, snag habitat is evaluated at the watershed scale in the Management Indicator Species, primary cavity excavator section of this chapter.

#### Columbia spotted frog - Great Basin DPS

Spotted frogs have not been observed in the project area but may be present. A spotted frog was noted in Spring Creek, downstream of the project area in 2013. The species has been found in streams, ponds, and marshy areas with abundant aquatic vegetation throughout the Umatilla Forest. Columbia spotted frogs are highly aquatic and rarely found far from permanent water, but they can also utilize intermittent streams and meadows in the spring. They seasonally move between hibernacula (overwintering sites), breeding habitat, and wet meadow or riparian foraging areas (Bull and Hayes 2002).

#### Rocky Mountain tailed frog

Tailed frogs have not been observed in the project area but may be present. Tailed frogs inhabit cold, high gradient, boulder and cobble dominated streams for breeding. Streams with dense overstory shade are preferred. Froglets and adults are closely associated with the streams, often hiding in gravel and cobble substrates. Tadpoles cling to boulders and cobbles; full development of this species requires as many as 5 years to complete.

## Fir pinwheel

Fir pinwheel are snails typically found near perennial water in or near talus or under down logs. They tend to be outside of the floodplain, low on a slope or in a ravine. A fir pinwheel was recently found near the mouth of Thomas Creek, about 4 miles outside of the project area (Duncan and Huff 2009).

#### Johnson's hairstreak

Johnson's hairstreak is a butterfly that lives on dwarf mistletoe in the tree canopy. It is widely distributed in Oregon, but considered to be very localized and scarce with few "big" years. In western Oregon it is associated with grand fir dwarf mistletoe, which is not present here. In northeastern Oregon it has been found feeding on western dwarf mistletoe on ponderosa pine. The species has not been documented on the Umatilla forest.

## ANALYSIS OF EFFECTS – TES WILDLIFE AND INVERTEBRATE SPECIES

#### ALTERNATIVE A - NO ACTION

The condition of habitats for listed and sensitive wildlife species would not change in the short term. In the long term habitat would not change other than through natural processes. Most sensitive species would be unaffected. Habitat for white-headed woodpecker and Lewis' woodpecker would continue to be scarce due to over growth of understory in dry stands. No negative effects are predicted for any sensitive species from taking no action.

#### EFFECTS COMMON TO ALL ACTION ALTERNATIVES

### **Direct/Indirect Effects**

#### Canada lynx

Because the Umatilla Forest is considered unoccupied, there would be no effect to Canada lynx. If lynx are detected and confirmed in the area, the need for protection measures would be evaluated.

#### North American wolverine

Management actions such as timber harvest, prescribed fire, and grazing, are not considered a threat to this species (USFWS 2013). Because wolverines are dependent on deep snow cover that persists into the month of May for successful denning, the primary threat is from habitat and range loss due to climate warming (USFWS 2013). Since denning is not expected in the area, there would be no effects to reproduction.

As far as direct and indirect impacts to individuals, there is a chance that a wolverine could be present or pass through the Thomas Creek area, but the likelihood of that occurring during project activities is extremely small. Travel corridors would remain available and food such as small mammals and dead ungulates would remain available. Therefore the implementation of any alternative proposed in the Thomas Creek project would have no impact to North American wolverine.

#### Gray wolf

The primary criteria for evaluating impacts to wolves are open road densities and public access, effects to prey species, and disturbance to den and rendezvous sites.

Open road densities in the area are low. Closed roads that will be used for timber harvest operations will remain closed to the public. Temporary roads established during project implementation will also be unavailable for public use and will be reclaimed upon project completion. Thus, there will be no increase in road densities or public access from this project.

The proposed activities are not expected to reduce prey availability; if anything prey might be more available due to higher visibility in treated stands. See the elk section in this chapter for further information. Although the project may slightly change the way domestic sheep utilize the area, it is likely that more open stands would improve the herder's control of the sheep (Brad Lathrop, pers. commun.).

If a den or rendezvous site is identified prior to or during project activities, the Forest Service would consult with Oregon Department of Fish and Wildlife personnel to determine if seasonal restrictions or other requirements are necessary. Because these sites are difficult to locate and can change yearly, this would need to be assessed on an ongoing basis throughout the life of the project.

Scientific literature and experience of regional and local biologists indicate that timber harvest and associated activities has thus far had no evident impact to wolves on the Umatilla Forest (see Berkley and Hickman 2015). The Oregon population has increased tenfold since 2009 (ODFW 2015).

With these factors in mind, the proposed activities in combination with other past, present, and reasonably foreseeable future actions would have no impact to gray wolf.

## Townsend's big-eared bat

Proposed activities would not affect caves, buildings, or mine adits that attract big-eared bats. The known building roost on private land is over 7 air miles from proposed activities at a very low elevation (2000 feet). This species is not expected to occur where tree cutting activities are proposed on the Thomas Creek project at a much higher elevation and forest type, and far from the known roost on private land. Since they are not expected to be present near the proposed activities, there would be no impact to big-eared bat.

#### Bald eagle

Bald eagle use of the area is incidental and there are no nearby nests. Since it is highly unlikely that individuals would be in close proximity during project activities, there would be no impact to bald eagle.

# White-headed woodpecker and Lewis' woodpecker

No timber harvest would occur in existing white-headed woodpecker or Lewis' woodpecker reproductive habitat. Both species may forage in the analysis area but it is unlikely that they nest there. There are no large stands of open ponderosa pine with large trees. No large snags would be removed unless they are a hazard to workers. A very small amount of thinning and underburning in ponderosa pine would help move these stands towards suitable conditions for these species.

No existing nesting habitat would be affected and therefore no impacts to the population would be expected. Therefore there would be no impact to white-headed woodpecker or Lewis' woodpecker.

### Columbia spotted frog - Great Basin DPS and Rocky Mountain tailed frog

Tree thinning in RHCAs may impact spotted and tailed frogs, but would not likely cause a trend toward federal listing. Tree cutting in riparian habitat conservation areas (RHCA) has been carefully designed to avoid adverse effects to fish and aquatic habitat. Hand treatment may affect areas 15 feet from the streams, but most work would occur farther from streams.

Large woody debris placement is planned in Phillips Creek. Spotted and tailed frogs have not been observed in these specific areas, but could be present. If they are present during project work, adults can move away. Larvae are confined to the water and less mobile. In-stream project work would affect small areas and short amounts of time to place wood. Any effects would be limited in time and space and no measurable effects to frog populations are expected.

#### Fir pinwheel

Proposed activities within riparian areas have been carefully designed to avoid adverse effects to fish and aquatic habitat, but tree cutting would be implemented in RHCAs. Although fir pinwheels are not documented in these areas, there is a slight chance they could be present. Generally they are protected by existing logs and rock. Because there is a small risk of effects, the project may impact fir pinwheel, but would not likely cause a loss of viability or a trend toward federal listing.

#### Johnson's hairstreak

Because there is little known about Johnsons' hairstreak and its relationship to mistletoe in the Blue Mountains, it is assumed that most any timber removal could have an effect on the species. Western dwarf mistletoe has not been reported in the ponderosa pines in the analysis area, and Johnson's hairstreak has also not been documented. The nearest record is on the Wallowa Whitman National Forest.

Because there is a very slight risk of effects, the project may impact Johnson's hairstreak, but would not cause a loss of viability or trend toward federal listing.

#### Cumulative effects

Cumulative effects are evaluated at the project scale. Ongoing and proposed activities include sheep grazing, road maintenance, firewood collection, and recreational activities.

Sensitive species which may have direct or indirect effects from the Thomas Creek project include spotted frog, tailed frog, fir pinwheel, and Johnson's hairstreak.

No cumulative effects are expected for Johnsons' hairstreak. Presence of Johnson's hairstreak is doubtful in this area. Firewood cutting would not likely impact this species because it is believed to be associated with dwarf mistletoe in live ponderosa pine trees in eastern Oregon. Firewood cutting of live ponderosa pine is not allowed. Ongoing non-commercial thinning would also not affect Johnson's hairstreak habitat.

No other activities are ongoing or proposed in riparian areas that could affect tailed frog, spotted frog, and fir pinwheel. No cumulative effects for these species is expected.

The following table lists the biological determinations for listed and sensitive species analyzed for this project (Table W13).

Table W13. Summary of effects for TES wildlife and invertebrate species.

Species	Status	Species Occurrence and Habitat Suitablility	Alternative A	Alternatives B,C,D,E
Canada lynx Lynx canadensis	Threatened	Potential	NE	NE
California Wolverine Gulo gulo	Sensitive	Potential	NI	NI
Gray wolf Canis lupus	Sensitive	Present	NI	NI
Townsend's big-eared bat Corynorhinus townsendii	Sensitive	Potential NI		NI
Bald eagle Haliaeetus leucocephalus	Sensitive	Potential NI		NI
Peregrine falcon Falco peregrinus	Sensitive	No Habitat NI		NI
White-headed woodpecker Picoides albolarvatus	Sensitive	Potential NI		NI
Lewis' woodpecker Melanerpes lewis	Sensitive	Potential	NI	NI
Upland sandpiper Bartramia longicauda	Sensitive	No Habitat	NI	NI
Columbia spotted frog Rana luteiventris	Sensitive	Present	NI	May Impact
Rocky Mountain tailed frog Ascaphus montanus	Sensitive	Present	NI	May Impact
Fir pinwheel Radiodiscus abietum	Sensitive	Potential	ential NI	
Johnson's hairstreak Callophrys johnsoni	Sensitive	Potential	NI	May Impact
Columbia clubtail Gomphus lynnae	Sensitive	Suspected	NI	NI
Yuma skipper Ochlodes yuma	Sensitive	Suspected	NI	NI
Intermountain sulphur Colias christina pseudochristina	Sensitive	Suspected	NI	NI
Hells canyon land snail Cryptomastix populi	Sensitive	Suspected	NI	NI

NE No effect on a proposed or listed species or critical habitat.

NI No Impact to R6 sensitive species individuals, populations, or their habitat.

MI May impact sensitive species, but will not cause a loss of viability or trend toward federal listing.

# FINDINGS OF CONSISTENCY

#### Forest Plan

All alternatives would be consistent with Forest Plan standards and guidelines, because they would meet design criteria set for the project, meet standards and guidelines for affected land management allocations, and provide for viable populations of wildlife species. All alternatives would provide for diversity of plant and animal communities in the Thomas Creek project area, based on the suitability and capability of the project area.

# **Endangered Species Act**

A biological evaluation (BE) was completed for federally listed and proposed endangered and threatened species, and for animal species currently listed as sensitive on the Regional Forester's Sensitive Species List. Determinations were made that none of the proposed project activities would adversely affect, contribute to a trend toward federal listing, nor cause a loss of viability to listed animal populations or species.

With regards to threatened and endangered species, a determination has been made that the proposed actions would not result in irreversible or irretrievable commitment of resources that foreclose formulation or implementation of reasonable or prudent alternatives. Consultation for Canada lynx is not necessary since a determination has been made that the proposed activities would have no effect to this species.

# Migratory Bird Treaty Act

All action alternatives are consistent with the 1918 Migratory Bird Treaty Act and the Migratory Bird Executive Order 13186. The Conservation Strategy for Landbirds (Altman 2000) was utilized to determine effects to focal bird species. Design features such as retention of adequate snags and down logs, retention of large trees, and restoration of riparian areas proposed in this project would minimize take of migratory birds and meet the intent of current management direction.

# Bald and Golden Eagle Protection Act

All action alternatives comply with the National Bald Eagle Management Guidelines (USFWS 2007) and the Bald and Golden Eagle Protection Act. Use of the area by eagles is sporadic, and no nesting or roosting habitat would be affected by the proposed activities.

# Facilitation of Hunting Heritage and Wildlife Conservation Executive Order

Action alternatives meet the intent of this order by maintaining and improving elk habitat.

# SPECIFIC DESIGN FEATURES AND MANAGEMENT REQUIREMENTS FOR WILDLIFE

If any federally listed species are found in the project area, a biologist will be contacted immediately. The Contracting Officer will take appropriate action to insure species are protected. Timber sale contract provision BT6.24 would apply. Protection measure for known federally listed species will be listed in provision CT6.24.

Protect goshawk nests from disturbance if any are located during project activities. No nest sites are currently identified. Defer harvest on 30 acres of the most suitable nesting habitat around nest sites. Retain late and old structure forest in a 400-acre post-fledging area (PFA) as determined by the district biologist. Defer activities in active PFAs from April through August.

Protect other known or discovered raptor nest sites from management activities and human disturbances until fledging has been completed. Levels of protection will vary by the requirements of the species involved.

Unique wildlife habitat such as seeps, springs, bogs, wallows, cliffs, talus, and caves will be protected by minimizing ground disturbance one and one half tree lengths from the area or as determined by the district biologist. (FP 4-57, 4-160)

Lithosol (scab flats) and meadows will not be used for landings and skid trails unless no other location is practical. If use is necessary disturbance will be kept to a minimum amount of the area, preferably at the edges.

Blasting to create snags will not occur during the bird nesting season March 1 to July 31.

Prescribed burns will avoid large diameter trees and down logs to the extent practical. Slash will not be piled against large trees or snags in order to reduce losses from prescribed burning.

Snags will not be felled unless they are a hazard to workers. All dead trees and snags greater than or equal to 12 inches DBH will be not be removed. Snags over 20 inches dbh will be avoided to prevent hazard situations. Any large snags felled for safety reasons will remain on site as down wood unless an excessive amount of fuels exist.

**Table W14.** Thomas Creek snag retention recommendation per acre

	Thomas Creek project recommendation	
Diameter class (inches DBH)	Snag Density	
>10	Leave all snags ≥ 12 inches	
>20	Leave all	
Total	Leave all snags > 12 inches	

In all units including regeneration harvest, green trees will be retained at the levels in Table W15 to provide for future snag recruitment to meet Forest Plan standards.

**Table W15**. Thomas Creek minimum green tree replacements and down wood retention per acre.

	Ponderosa pine	Mixed conifer	Grand fir	Lodgepole pine	Subalpine zone
Green Tree Replacements	16	16	9	14	19
Down Wood Pieces	3 – 6	15 – 20		15 – 20	
Diameter at the small end	≥ 12 in	≥ 12 in		≥ 8 in	
Length per piece	> 6 feet	> 6 feet		≥ 8 feet	
Total length per acre	> 20 feet	> 100	) feet	≥ 120	) feet

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